OCTOBER 1951

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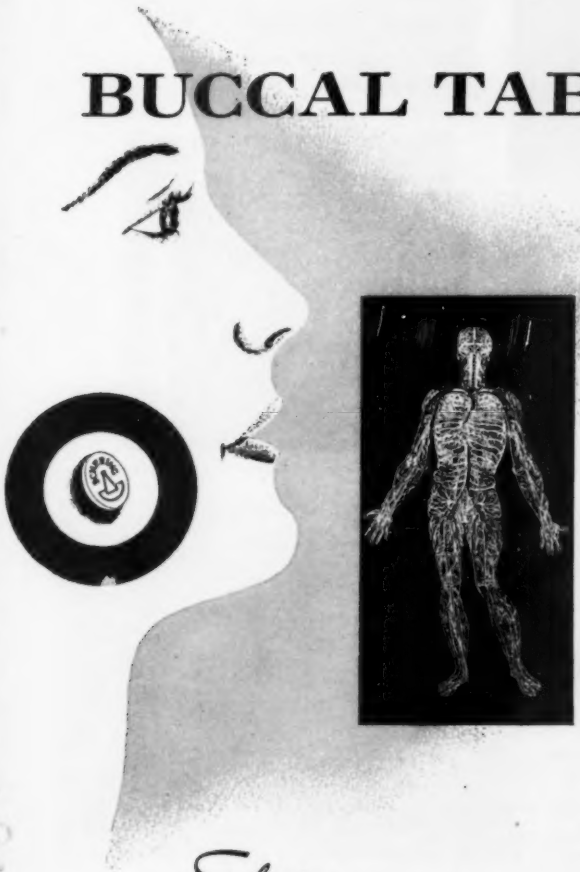

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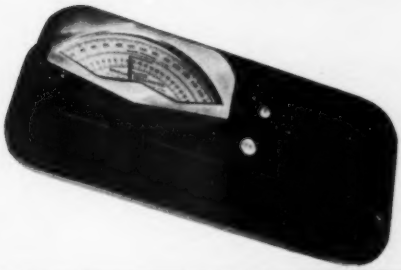

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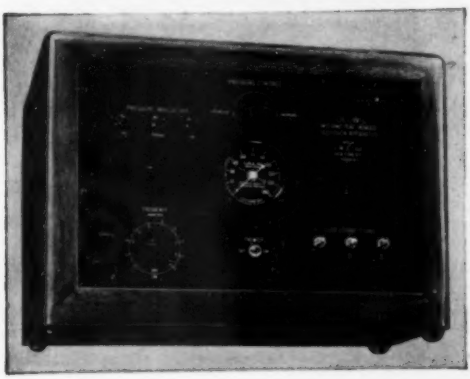

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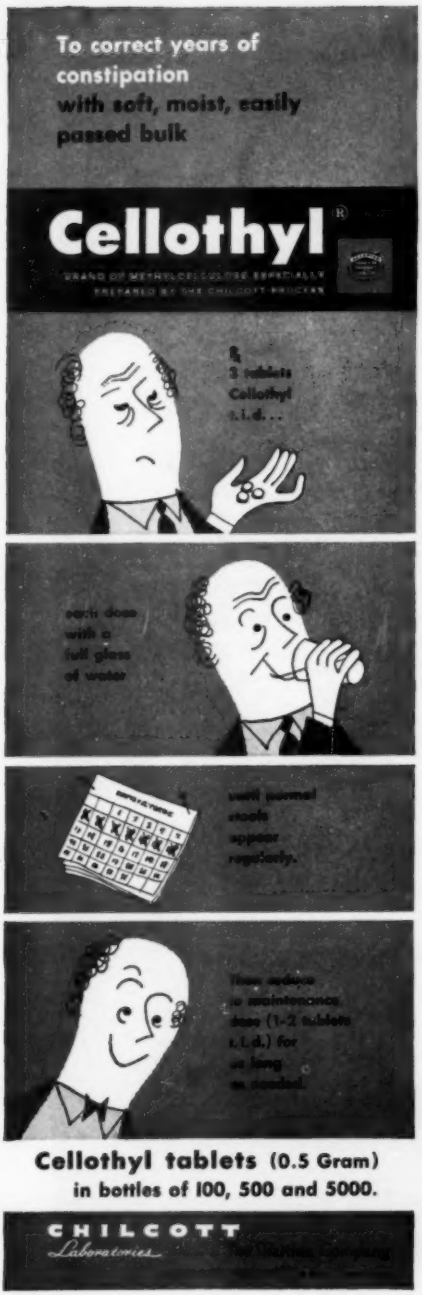
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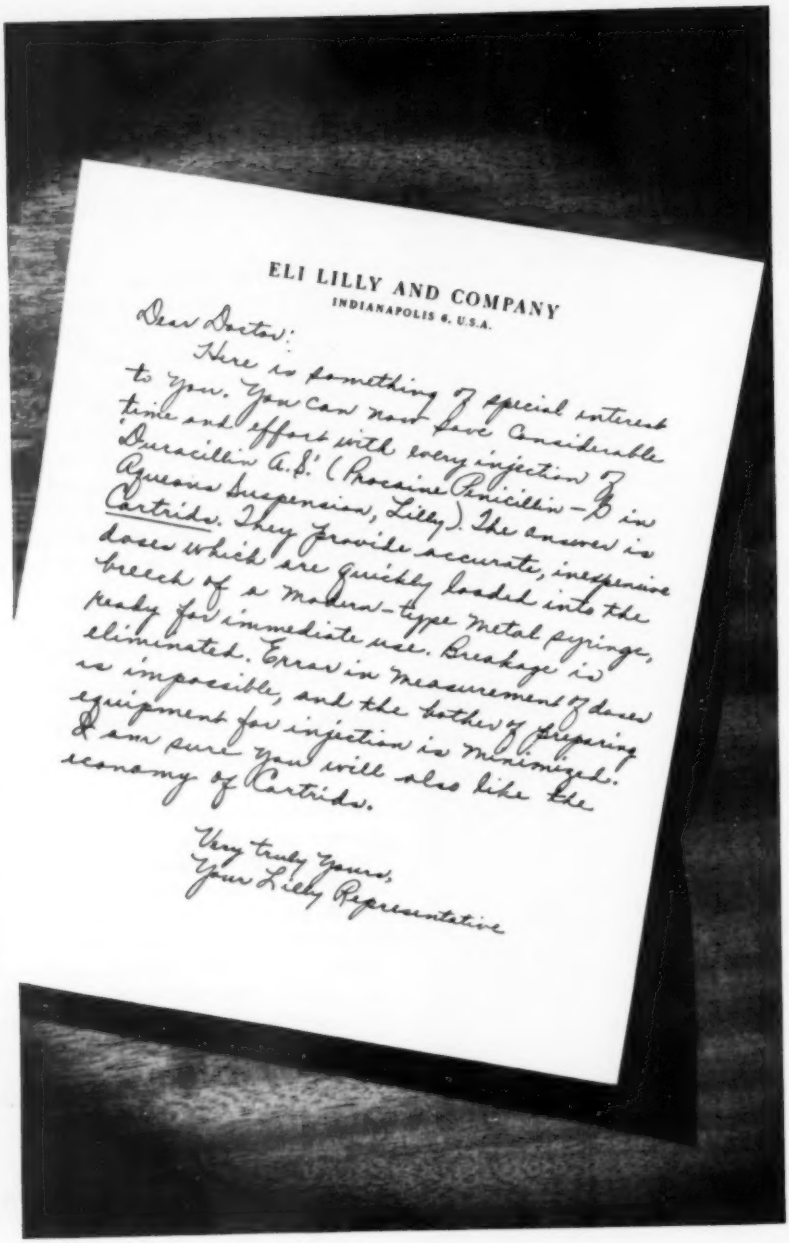
1. Newey, J. A., and Goetzl, F. R.: Permanente Med. Bull. 7:67 (July) 1949.



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BULLETIN OF
THE NEW YORK ACADEMY
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VOL. 27, NO. 10 OCTOBER 1951

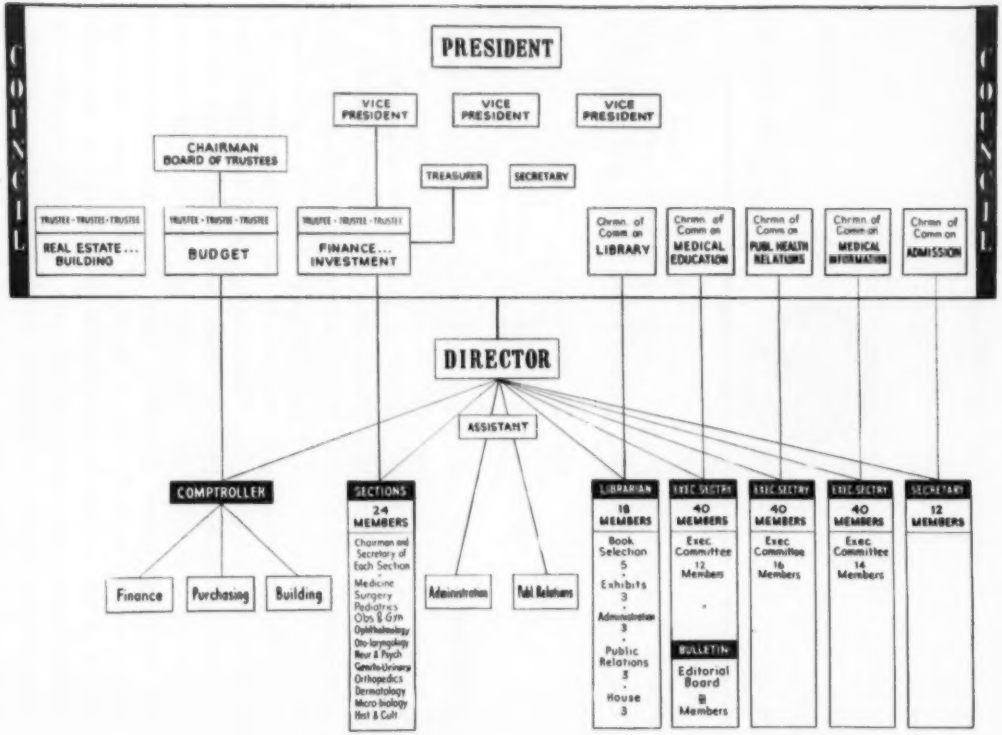
THE STRUCTURE AND FUNCTIONS OF THE NEW YORK ACADEMY OF MEDICINE

HOWARD REID CRAIG

Director, The New York Academy of Medicine

THE appearance of an article on the organizational structure, the functions and the functioning mechanics of The New York Academy of Medicine in its own Bulletin might, at first glance, seem to be a prime example of over-expanded institutional egotism. Far from such being the case, however, this sketch is an attempt to answer, in fairly succinct yet satisfactory fashion, many requests for information concerning the Academy and how it operates. These requests have been received, both in person and by mail, from physicians, from interested non-medical people and from educational institutions and societies scattered over this country and abroad. Referral of these inquirers to blue prints such as the Constitution and By-laws and to annual reports, gives only a suggestion of the machinery that produces the contents of the annual reports. Furthermore, most people shy away from annual reports except under extreme duress. Unfortunately, many annual reports justify this aversion, thus casting a stigma on those that are really readable and stimulating.

Further justification for this exposition lies in the fact that when an institution, educational or otherwise, reaches a certain point in its growth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and maturation, there is a temptation on the part of its component members to take the institution for granted without grasping the significance of its increased scope of activities, the mechanics that make possible its broadened horizons, or the responsibilities, both intrinsic and extrinsic, that that growth engenders. This lack of focus is sometimes the result of a detached disinterestedness, but more often it is due to the fact that concentrated interest in one circumscribed area of the institution's activities obscures the overall picture of the organization, a case of the trees obscuring the forest.

To answer these two needs, namely, to supply information concerning the Academy organization to outside groups, and to lay again before the Fellows of the Academy the structure of the institution of which they are the substance, is the object of this paper.

The New York Academy of Medicine, a non-profit, tax exempt educational institution, was founded in 1847 by a group of one hundred and eighty physicians of this city. Today, its roster numbers approximately 2,800, all elected upon nomination by the Fellowship itself. Its governing body, known as the Council, has sole responsibility, both in general and in particular, for the administration of the Academy and the determination of its policies in all matters, and meets monthly during the academic year. Examination of the accompanying chart, to which reference will be made repeatedly, shows the Council to be made up of the duly elected officers, President, three Vice-presidents, Treasurer, Secretary, ten Trustees and the Chairmen of the five Standing Committees. This group of twenty-one has final decision on all Academy affairs. It should be noted that all of these officers are elected by the Fellowship at large, except the five Standing Committee Chairmen who are elected by their respective committees. It should further be pointed out that the members of the Committees on Library and Admission are elected by the Fellowship at large. Membership on the remaining three committees of forty Fellows each is by appointment of the President and approved by the Council.

The Board of Trustees, of which each member is elected in rotation for a term of five years, elects its own chairman and has sole responsibility for the physical assets of the Academy, for budget make-up, and for the management of its invested funds. For this purpose, under its Chairman, the Board is broken down into three subcommittees to carry on these phases of its activities. In addition, an Executive Committee

made up of the Subcommittee on Finance, the Board Chairman, and the President and the Treasurer of the Academy, is empowered to act for the whole Board of Trustees in emergencies, or when it is impossible to have the whole Board convene. Proceedings or acts of the Board of Trustees are subject to approval of the Council.

At the close of 1950, the total assets for which the Trustees were responsible amounted to $9,100,964.24. Of this amount, $3,466,136.52 was represented by fixed assets, that is, building, books, furnishings, etc. For these fixed assets the Real Estate and Building Subcommittee is responsible. The Subcommittee on Budget set up a proposed budget for the Academy for 1951 of $471,798.00, which was approved. The Subcommittee on Finance and Investment has as its responsibility, the management of a portfolio which amounted to $6,379,424.00 at the market as of the close of 1950. This Subcommittee meets approximately semi-monthly.

The Chairmen of the five Standing Committees bring to the Council monthly reports of their activities, as well as those problems involving the Academy as a whole and requiring Council responsibility and approval.

Referring again to the chart, it will be seen that the lower half is devoted to the working committees or departments and their staffs.

The office of the Comptroller, responsible to the Director and to the Trustees, is concerned with the usual duties of bookkeeping and accounting, of handling accounts payable and receivable, and making all purchases. Expenditures are scrutinized and budgetary limits watched. Bookings for meetings and assessments for the use of space in the building are handled by one of the offices of this department. Ordinary day to day building maintenance and operation are also managed here. In addition, careful daily watch is kept of the Academy's investment portfolio with regard to movements of the market, and to keeping interest and amortization payments up to date on mortgages held by the Academy. This office, seldom in direct contact with the Fellows themselves, is one of the most active and vital components of the whole Academy structure.

The Committee on Sections, the Chairman of which is one of the Academy Vice-presidents, is composed of the Chairman and Secretary of each of the twelve Academy Sections, who are elected by the Sections themselves. In addition, each Section has an advisory committee made

up of its five preceding Chairmen. This committee of twenty-four is responsible for one of the oldest and most fundamental functions of the Academy, that is, preparation of the programs and the management of the monthly meetings of the Sections. It is here that the real basic and continuing post-graduate educational work of the Academy is carried out. The character of the programs and the conduct of the meetings are entirely in the hands of the Sections, and these vary considerably in the different specialties.

The Committee on Library, composed of eighteen elected Fellows, is subdivided into five subcommittees which are responsible respectively for 1) book selection; 2) exhibits; 3) administration; 4) public relations; 5) building and structural facilities. This Committee works in close cooperation with the Librarian and her staff. For a detailed account of Library activities, the reader is referred to the last annual report of the Academy. A listing and discussion of available Library services may be found in recent numbers of this Bulletin or may be obtained in mimeographed form from the Library itself. However, it is of interest to know that at present the Library contains some 275,000 bound volumes and an equal amount of unbound material, that its readers in 1950 totaled over 40,000, and that its circulation services numbered over 95,000 in the same period. There are fifty-three persons employed on the staff and the overall cost of the Library for 1951 is budgeted at $196,347. These few figures give some idea of the size, activity and cost of this Library, which is one of the two most important medical libraries in this hemisphere and one of the four or five most important in the world.

The Committee on Medical Education, composed of forty Fellows appointed by the President and approved by the Council has an Executive Secretary and a staff of six. Through subcommittees appointed by the Chairman, this Committee provides a very wide fare of exercises in the field of the continuing education of the practicing physician. It arranges the programs for the monthly Stated Meetings of the Academy. The two-day mid-winter Clinical Research meetings are provided for. The so-called Friday Afternoon Lectures for general practitioners, twenty in number, are planned and produced. The past year's series was the twenty-fifth such annual series. The Graduate Fortnight, devoted to a single subject, the 1951 Fortnight being the twenty-fourth, provides twenty evening lectures, four morning panel discussions, twenty-one afternoon hospital clinics, six televised telecolor programs

of surgical procedures, ten motion picture programs and an extensive and exhaustive scientific exhibit. The 1951 Fortnight, in collaboration with the New York Heart Association, will be devoted to "Disorders of the Circulatory System." All of these functions, together with the award of the Bowen-Brooks Scholarships, are carried on by this committee. In addition, the department maintains the Bureau of Medical Education, which provides information concerning medical education at all levels, medical and hospital practice, and information to governmental, educational and social agencies covering a wide variety of subjects. The grey folder, a monthly calendar of Academy meetings, so well known to physicians in this area, is set up and edited and the daily bulletin, showing surgical operating schedules in the hospitals of the city, together with schedules of conferences, rounds and clinics, is prepared and mailed from this department. On request, lecture series are arranged for the resident staffs of some of the New York hospitals.

Finally, the Academy Bulletin, with an Advisory Editorial Board of eight Fellows appointed by the President, is edited and published in this office.

The Committee on Public Health Relations, initiated as a committee in 1911, is composed of forty Fellows appointed by the President and approved by the Council. Of all the committees of the Academy this Committee is probably best known to the public because it alone, with the approval of the President, is empowered to speak for the Academy in matters of policy with regard to public health and the community. As with other Academy committees, it meets once a month, but its Executive Committee meets weekly. A glance at the report of this Committee in the Academy Annual Report will show the wide range of problems studied. These problems are brought to the Academy from many sources, the medical profession, the lay public, welfare and health agencies, local, state and federal governmental agencies, the legal profession, and the Committee members themselves. The individual problems are assigned to subcommittees for study and investigation. Although the chairmen of these sub-committees are always members of the Committee on Public Health Relations, a unique practice of this Committee has been to enlist as members of its subcommittees those persons conversant with the subject under study, whether in or out of the Academy Fellowship or in or out of the medical profession, and therein has lain part of its strength and effectiveness. Another feature

of the Committee has been that, under the three physicians who have been its successive Chairmen over the forty years of its existence, its membership has been heavily weighted with medical practitioners, with only a small leavening of professional public health men, rather than the reverse. This has had a salutary effect on both groups. The Committee has an Executive Secretary and a research and clerical staff of five.

The Committee on Medical Information occupies a unique place in the life of the Academy and the community at large. Made up of forty Fellows appointed by the President and approved by the Council with an Executive Secretary and a staff of four, it serves as a middle ground between the medical profession and the lay public. As an information center, it received and handled in 1950 more than 12,000 inquiries from physicians and, more important, from lay individuals, organizations and the press. Although the Committee and its staff is in no sense a censoring or policing body, it is, with the help of a panel of some 250 consultants, in a position to advise the lay public and particularly the various media of communication as to the validity of claims, the advisability of publishing certain material or the forms of publishing such material. Under the aegis of various subcommittees, again many diverse projects are regular activities of the Committee. A series of six Lectures to the Laity are given each year by outstanding medical authorities for lay consumption. These lectures are broadcast from the Academy by Station WNYC. In addition, this Committee, in cooperation with the Committee on Medical Education, broadcasts a weekly program, "For Doctors Only," over WNYC-FM. The material presented in these broadcasts consists of recordings culled from the various Academy exercises, the Friday Afternoon Lectures, the Graduate Fortnight, etc. A two-day Health Education Conference for lay workers in the health field is an annual occurrence. The Committee has arranged conferences with outside groups such as the clergy, civil defense authorities, and other groups outside the field of medicine in which there is a community of interests or problems. An annual dinner for the press and radio groups has gone far toward bringing a better mutual understanding of the inter-related problems of medicine and journalism. In addition, the department issues press releases of public interest and reviews manuscripts written by the laity or by physicians for lay reading.

Twelve Fellows, elected by the general Fellowship for rotating

terms of three years each, constitute the Committee on Admission. The Assistant to the Director acts as recording secretary to the Committee which elects its own Chairman and Secretary. It is the function of this Committee to consider each candidate nominated for Fellowship on the basis of his standing and accomplishments in his profession, his contributions in terms of literature, teaching, research, hospital affiliations and general desirability. Those so approved are recommended to the Fellowship at large for election to the Academy. The proceedings of this Committee are, absolutely and without exception, confidential.

Finally, we come to the function of the Director. He is responsible, solely and directly, to the Council for the overall administration of the Academy. He must know what every department is doing, what its problems are, and with what effectiveness it is operating. The work of each department and committee must be coordinated with each of the others so that there is no duplication of effort nor clashing of interests or enthusiasms. To accomplish this, he must attend almost every meeting of every committee. In other words, he must be a part of every Academy activity without putting himself in the position of attempting to direct or control those activities. Initiative and imagination on the part of the Fellows of the Academy and the staff have been most important factors in its growth and strength. As an administrator, the Director must have direct knowledge of the Academy's affairs in relation to finance in the world outside the Academy. In other words, internally, the expenditure of every dollar must be justified; externally, every dollar of invested Academy capital must yield the utmost that is compatible with safety. After administration, the Director's second function is that of establishing cooperative relationships not only within the medical profession, but, just as important, with the world outside of medicine, using the term in its broadest sense—with industry, with governmental agencies of all kinds, with trade unions, with the various health, welfare and social agencies, with the philanthropic foundations, with the universities – in other words, with the community as a whole. Only by such relationships can the potentialities of the Academy, which has the necessary man power and the facilities, be fully realized. That is the Director's second responsibility. Lastly, it is the Director's function to attempt to visualize and anticipate the future of the Academy in terms of its needs, the demands to be made upon it, and its resources for meeting those demands. These are intangibles and unpredictables,

but the day will come when these intangibles will become concrete problems for our professional descendants.

In a short article it is only possible to picture a skeleton of organization, but that skeleton should suggest the broad field in which the Academy functions and how these functions are carried out. No attempt has been made to analyze these functions qualitatively, but any attempt at qualitative evaluation must establish as its basic starting point the fact that the Academy has three prime interests, namely: 1) medical education, aimed particularly at the practicing physician but covering other professional levels and the lay public; 2) a working library of the first magnitude; 3) public health and the welfare of the community. These objectives were clearly stated by the founders of the Academy in 1847 and throughout the years, to the credit of the Fellows, they have remained and are today the fundamental objectives of The New York Academy of Medicine.

EWING: THE EXPERIMENTAL METHOD AND THE CANCER PROBLEM

CORNELIUS P. RHOADS

Director, Memorial Center for Cancer and Allied Diseases, New York

Sixth James Ewing Memorial Lecture

THIS lectureship, established in the name of James Ewing, may properly develop any one of his many noteworthy contributions. An important one, and one peculiarly his concern, has been chosen.

The name of Ewing, now traditional, invariably conjures up a well-defined image. Reminiscence is first directed to his very real personal eccentricities; then as a supplement, evidence is recounted of his remarkable competence as a morphologic anatomist. The composite picture, of an eccentric morphologist, is wholly inadequate, however. It omits his most important contribution, his unique recognition of cancer as a challenge to society as a whole, and to investigative clinical medicine in particular.

Ewing regarded cancer as a responsibility of the scientific group as a whole, as well as of the individual scientist. This point of view imposed a serious obligation on the investigator. It required, basically, that the possessors of pertinent skills give priority for their use to medical problems of social importance such as cancer. It required, furthermore, the crossing, in coöperative work, of the conventional dividing lines between the various intellectual disciplines of the university curriculum. This was not and still is not a popular doctrine.

Ewing not only was the first to regard cancer as a problem in clinical study. He also saw it as susceptible to solution if competently and adequately approached. His understanding of the problem, in light of modern knowledge, was great and very substantially correct, and his concept provides an invaluable guide for work of the present day. It is fitting, therefore, that we examine the course of cancer research in general to establish to what extent his wise counsel can still be a useful guide. Perhaps the cancer problem is as soluble, if approached in an

* Presented at The New York Academy of Medicine, May 3, 1951.

orderly way as a major obligation of society, as Ewing believed it to be.

To estimate the practicability and progress of any scientific enterprise, we must define it and specify its goal. One would assume that in the case of cancer research the definition would be the study of the disease, cancer, and the goal its cure or prevention in man. Many do not accept this point of view, however. Indeed, two concepts exist according to which two quite dissimilar types of work are going forward supported by cancer funds. One type, and the one principally in vogue, involves investigation on a random basis. It is designed to increase our knowledge of the natural sciences in general, in the expectation that something applicable to cancer will turn up. The other is a more direct approach, originally advocated by Ewing and now achieving new support. This levels at cancer the procedures which have already proved their ability to solve major problems of disease in man.

The random plan was adopted in the conviction that cancer is a special case, a mystery. Under this concept, obviously, cancer control cannot be attained by the methods useful in other fields. It is based upon the assumption that some revolutionary disclosure is required before we can approach cancer directly. We frequently hear, indeed, that nothing will serve short of exposing the secret of life itself, whatever that may mean.

One reason for the mystery point of view of cancer is understandable. It is the fact that the best examples of controllable disease, the infectious ones, are generally regarded as being caused entirely by external invaders. Hence, if a disease is infectious, it is controllable, is the immediate, though superficial, conclusion. Evidence of a foreign etiology in the bacterial sense is lacking for cancer induction. Hence, the idea persists that cancer is beyond our ken—that it is scientifically inaccessible. That this idea does persist is remarkable indeed, in face of the obvious fact that cancer is curable to a very substantial extent by the simplest of procedures, its local removal. This provides the most obvious suggestion of an analogy between the infections and neoplastic processes, and the most telling refutation of a defeatist philosophy. The cure by removal of the localized consequence of bacterial invasion, the acute appendix and the infected gall bladder, are the most common medical experiences of the citizen.

If we examine the existing facts regarding the process of neoplastic growth, the case for the mystery view becomes less complete. The data

can be arranged to compose a perceptible pattern which approximates the invasion of tissues by foreign cells. If this point of view is not a mirage, cancer might be regarded as not so inaccessible, but rather as vulnerable to attack by accepted techniques.

The professional development of Ewing epitomizes the progressive increase of knowledge and techniques applicable to the understanding and control of cancer as a clinical problem. His vision and wisdom were great, but his investigative tools were inadequate for his purpose.

The wholly reasonable desire to bring cancer out of the mystery class into the familiar circle of contagious disease resulted early in a search for a simple external cause, like a bacterium or a virus. This was where Ewing first came in, when all cancer workers were observing and culturing neoplastic tissue. Many objects, presumed to be living, were described, but none were demonstrably etiologic.[1] It is interesting that recently, forty years later, similar findings have been reported by two laboratories.[2, 3] The refuted conclusions of many workers, well summarized adversely by Ewing in 1908, now have been made once more, so belatedly as to seem, and to be received, as entirely new.

Certain forms of cancer in fowls, however, can be transmitted by a self-reproducing agent (virus) of less than cellular size.[4] There are types of cancer in mice and rabbits of which the cause is related to but not wholly dependent upon similar particles.[5, 6] In plants, both bacteria and viruses cause neoplastic tissue to develop.[7, 8] Despite vigorous efforts, however, to convert these sporadic observations into uniformly applicable ones, there is, after thirty years of study, no reason to believe that cancer induction in general, in mammals, is due to an ordinary external infectious agent.[9]

The term "ordinary" is employed deliberately. As knowledge grows, the line becomes unclear between infectious agents carried by contact, the conventional viruses, and cellular components more like genes, capable of carrying out hereditary functions after transfer to other cells.

Our most recent observation, that of Cannan,[10] with the electron microscope, indicates that cancer cells, human or animal, contain particles not found in normal ones. We do not know whether these are parasites, plasmagenes, virus particles, or simply abnormal functioning cellular entities like modified mitochondria. What we call them makes little difference, after all, if the neoplastic cell, irrespective of its origin or content, be recognized as the self-reproducing, invading agent. Im-

portant it is, however, if the cell be different from any normal one and so itself analogous to the invading bacterium, and the disease cancer be due to invasion of tissue by the abnormal cell and so susceptible to cure if the invader is destroyed or rendered inert.

When the evidence failed to support the thesis that cancer is a cellular reaction to a microörganism, Ewing took the next intellectual hurdle. He reasoned that the cancer cell itself, a mutant form, must itself be the invading microörganism, the analogue of the invading bacterium. This most fundamental concept, upon which all of our modern studies depend, is supported by the evidence. The cancer cell clearly is a mutated normal one, and as such, should be not only resistant to the forces which control normal cells but, on the other hand, susceptible to attack by means which exert less effect on these normal relatives and progenitors.

Once the cancer cell has fully developed, it clearly cannot revert to a normal one. Its continued growth and reproduction does not, as far as is known, require the continued presence of the inducing agent (mutagen). This means that the direct and immediate cause of the symptoms, the disease we call cancer, is not the agent which caused the mutation, but the mutations produced. These are the cells which have assumed new, invasive characters and thereafter hand them on to their progeny. We would, of course, like to define and remove the primary mutagenic chemical, but this has not yet been defined. Hence, the first, and most practicable job is to get rid of its product, the cancer cell. We know already from surgical results that if the invasive cells are removed totally, nearly all patients can be cured. Second primary cancers, though well known, are infrequent enough to prove that the continued activity of a cancer-producing agent is rare and of low priority.[11] At present to eliminate cancer reproduction is more feasible than to remove cancer production.

The thesis, then, is that the destructive invasion by cancer cells, as contrasted to their origin, is not so mysterious; that it can be viewed as analogous to invasive infection by bacteria. To support this thesis requires that we justify our mental substitution of the cancer cell for the infecting bacterium. To do so we must establish that the process of infection takes place by the same fundamental mechanism, in principle, as does the process of cancer.

Three conditions, basically similar in principle, must be fulfilled be-

fore either invasive cancer or invasive bacterial disease can exist. They are as follows:

1. There must be a normal cellular population of which some individuals can give rise, by mutation, to progeny which are more vigorous and aggressive under certain conditions than are their relatives and parents. In the case of mammals, practically any type of tissue cells capable of reproduction can mutate to neoplastic forms. Similarly, certain bacteria and viruses live as normal inhabitants of the body, wholly without injurious effects, until some new factor comes into play to change, to modify them to virulent, aggressive units.

2. There is required some agent which causes a mutation of normal cells to the invasive, malignant ones productive of invasive cancer in the case of body cells, or of invasive infection in the case of bacteria. The observations of Demerec[12] on this point are noteworthy. He studied a series of known carcinogens and chemically related compounds, and showed that of seven carcinogens tested, six were mutagenic; whereas of nine non-carcinogens only two were mutagens. The criteria of mutation were the induction of X-chromosome lethals (= L) and of chromosomal aberrations coincident with lethals (= CA). The underlined compounds are carcinogens in the following table summarizing this work.

Mutagenic		*Non-Mutagenic*
1, 2, 5, 6-dibenzanthracene	L-CA	anthracene
20-methylcholanthrene	L	phenanthrene
3, 4-benzpyrene	L-CA	pyrene
1, 2-benzanthracene		alpha-naphthylamine
		beta-naphthylamine
p-hydroxyazobenzene	L-CA	azoxybenzene
p-aminoazobenzene	L	p-diethylaminoazobenzene
p-dimethylaminoazobenzene	CA	(Doubtful)
2-amino-5-azobenzene	CA	azobenzene

In the case of bacteria, certain chemicals, called transforming factors, have been isolated which cause permanent inheritable changes (mutations) to occur. I refer to the notable work of Avery and his associates.[13] The action of these bacterial transformers is basically similar to that of mutagens of other types, except for their lack of effect on any but bacterial cells.

3. For the body to be invaded it must provide an environment favorable to the growth of the invader, the mutant forms. In the case of

cancer, this appears to be related to endocrine imbalance.[14] In the case of bacterial agents, invasion is favored or impeded by the absence or presence of immunity. This, in turn, also may be related in some presently obscure way to endocrine balance.

Ewing was one of the first to recognize the possibility that an abnormality of the endocrine system might provide a favorable environment for the development and continued growth of cancer cells. He was impressed with the fact that chorioma was frequently associated with cystic degeneration of the ovaries, and his conclusion that some ovarian secretion was responsible for the neoplasm was an obvious one. His comment is:

"An explanation of the excessive capacity of tumor cells to absorb nutriment would unravel a great mystery in the physiology of neoplasms. An extremely important bearing of this factor has been found by L. Pick in the relation of corpus luteum secretion to chorio-epithelioma. In 1895 Marchand found that in a large proportion of cases of this very malignant tumor both ovaries show hyperplasia and cystic distention of the corpora lutea."

Countless observations since the original one bear out the conclusion that a relationship exists between neoplasms and substances of endocrine origin. No less than five types of cancer in mice can be produced by estradiol administration.[15] But most convincing of all is the coincidence of uterine cancer with functioning tumors of the ovary, often described, and summarized by Gusberg.[16] To convert this observation to a major step in the understanding of the cause of female genital cancer should only require better methods of study of the chemical details of ovarian secretion. Slowly these are coming to hand.

The very best example of the dependence of neoplastic tissue on hormonal environment is found in the studies of Gardner[17] and Hooker. If interstitial testicular cells are maintained in an unfavorable milieu, by giving female hormone to the male animal, they are gravely injured. Some cells die, some barely stay alive. Then, a new race of vigorous forms appear. These are permanent variants (mutants), well suited to the environment that kills their parents and relatives.

If these neoplastic cells are transplanted to other susceptible male animals, they grow at first only under one condition. They lie dormant and undetectable until the same environment of female hormone is provided as the one which originally induced their aggressive qualities.

The hormone provides the third factor required for successful invasion, the susceptibility of the host.

If we accept the role of the host in the cancer process, and if we are to support our analogy between the neoplastic process and infection, we must demonstrate a host factor which operates in the invasion of bacteria. In infectious disease, the environmental, or host, factor is immunity, the lack of which permits the bacterial or viral variants to survive and invade.

In three respects, then, cancer can be regarded as analogous to bacterial invasion. Both bacterial and tissue cells can be mutated to invasive forms by suitable agents. Both mutants survive and invade successfully only if the soil is favorable.

Let us assume, then, that a case is made for the invasion by cancer cells as analogous to infection by bacterial ones. How shall we go about the cancer job? One conclusive experiment is obviously as good as endless speculation. Clearly one might try the methods which cure bacterial invasion.

Three general principles of bacterial control can be used as guides, as follows:

1. We can remove surgically the localized focus of the invading cells. We do so, of course, every time we extirpate localized cancer or when we take out a similarly localized acute appendix.

2. We can enhance the natural protective forces of the body. To do so we immunize against some bacteria. Exactly this we cannot do at present for cancer arising spontaneously. On the other hand, immunity against transplanted cancer is easily demonstrable. New methods of study are at hand, however, and it is quite possible that new developments are in the offing. The studies of Pressman[18] demonstrate the existence of a previously undescribed type of tissue antigen which evokes a new type of antibody. This may open a new area of cancer immunology.

3. We can seek chemical agents which will preferentially injure or kill cancer cells as compared with any indispensable normal cells of the body. In the case of bacterial infection this has proved to be an effective procedure. It has always been supposed that nothing of the sort was possible in the case of cancer. A similar supposition prevailed for bacteria until the job was done. We hope not only that cancer chemotherapy is possible, but that it is probable. Indeed, in a limited

and unsatisfactory fashion it is already here.

Once more, the original observation was made in part by Ewing. At the Roosevelt Hospital, with which Ewing was associated, an impressive and dramatic observation was made in 1910.[19] A patient with advanced mammary cancer progressing inexorably, suddenly reversed her clinical course. The neoplastic deposits disappeared almost overnight. When the patient finally died and a post-mortem examination was made, an important finding was recorded. Both ovaries had been destroyed and replaced by cancer cells. The regression, in light of present knowledge, showed that oöphorectomy made the environment unsuitable for the growth of cancer cells.

This observation, confirmed by similar ones made elsewhere, convinced Ewing. Cancer regressions clearly did occur spontaneously. If so, it must be possible to induce them artificially. Here was a rich field for a man with clinical and laboratory training. He resolved to make it his life's work. He never deviated from that resolution.

There existed, at this time, two reports of the induction of regression of breast cancer by ovarian removal; one by Beatson[20] published in 1896 and one by Lett[21] in 1905. There have been many since. The observation has been confirmed over and over again, and with all sorts of modifications. They culminate in the beautiful demonstration in 1939 by Huggins[22] of the effectiveness of feminization of men in restraining the growth of cancer of the prostate. Similar are the observations of Adair[23] on testosterone and of Haddow[24] on stilbestrol in the restraint of cancer of the breast. In spite of the ample confirmation of these studies their implication, that more adequate control, indeed clinical cure itself, should result from intensive prosecution of the leads at hand, has never been accepted.

It should be remarked that throughout the history of medicine a curious obtuseness has afflicted those who should have implemented scientific advance. It required a century for the control of scurvy by antiscorbutics described by Lind to be accepted. Vogel,[25] in his review of the development of antiscorbutics, comments, "It is one of the mysteries attending the slow progress of civilization why in spite of accumulated knowledge and experience the use of antiscorbutics did not become universal and scurvy continued to be accepted as one of the inevitable accompaniments of life at sea." Thirty-two years elapsed between von Mering[26] and Banting[27] and twenty-six before bacterial chemotherapy

moved from salvarsan[28] to sulfanilamide.[29] Antibiotic action, as a principle, was well known to Pasteur[30] and many others, over half a century before it was established by Florey as clinically useful.[31]

Can it be that enough basic information is now at hand to justify the belief that effective cancer chemotherapy will be developed in time, even though it is not satisfactory at present?

It is easy to understand the cure of bacterial disease by selectively destroying the invader. We can observe the bacterium through magnifying lenses and obtain a view which satisfies the most skeptical. The invader obviously is quite different in appearance, and so, presumably, in function, from the mammalian cell which it destroys. Hence the idea of preferential chemical killing of bacteria is not too hard to accept. Once accepted, intensive scientific investigation has followed naturally. Similar obvious differences between normal and cancer cells have not, in the past, been equally apparent. Hence a dim view has been taken of cancer chemotherapy. Now, however, from the preliminary work of Cannan, components possibly different qualitatively appear to be demonstrable. The fact of difference seems to be borne out, furthermore, by the observations of Alfin-Slater, Larack and Petermann,[32] of Hogeboom,[33] and of Kensler.[34]

Bacteria provide us with the most beautiful examples of the different sensitivities to lethal injury possessed by closely related forms, offspring of the same parents, but differing in a few details of structure or function. The appearance of mutant forms of streptococci in aging cultures, of actinomycetes after a few days of growth, and of antibiotic-requiring strains of bacteria, are accepted phenomena. Bacterial and mold variation, with consequent change in nutritional requirements and, hence, differential susceptibility, are now everyday laboratory tools.

The next step is to prove the case, to establish that neoplastic mammalian cells exceed their normal progenitors and relatives in some specific susceptibility. The first suggestive evidence is at hand in the studies of Kensler.[35] The results indicate that the brei of liver cancer cells which arise consequent to the feeding of the dye dimethylaminoazobenzene is resistant to the toxic effects of the metabolite of the dye as compared to the brei of normal liver cells. Other forms of cancer cells were found also to be more sensitive than most normal ones to a closely related analogue of this metabolite.

Shortly after the report of Kensler, there followed the demonstra-

tion by Philips and Gilman[36] that bis-betachlorethylamine, a nitrogen mustard, affects adversely the neoplastic cells of lymphoid tissue. Jacobson[37] proved that this was particularly evident in the case of Hodgkin's disease. Karnofsky[38] showed that the chemotherapeutic effect was detectable, though minute, on neoplastic cells of types other than those which arise from blood-forming tissue; notably certain forms of cancer of the lung. Tri-ethylene melamine, a distantly related compound of similar action, is now in general use in the treatment of neoplasms of blood-forming tissue.[39] Karnofsky[40] demonstrated, furthermore, adverse effects of nitrogen mustard on mammalian neoplastic tissue grown on the chorio-allantoic membrane of the chick embryo. The series of observations gave, at last, a lead to follow to that part of the cancer cell which may be specifically vulnerable to chemotherapeutic attack.

Data from Bodenstein,[41] and from Herriot[42] indicate that nitrogen mustard acts by interfering with the metabolism of desoxyribose nucleic acid, the characteristic component of the key-controlling unit of all cells, the chromosome. This, in turn, led to an extensive study of nucleic acid metabolism in normal and neoplastic tissue by Brown and his co-workers.

After Brown's work had begun, there came another encouraging sign to prove that the correct area of study had been selected. SubbaRow[43] prepared anti-metabolites of folic acid and made them first available to Farber for testing.[44] Folic acid obviously was related to the nucleic acid active in cellular reproductive function, possibly the chromosome. The anti-folic might preferentially restrain the growth of neoplastic cells. In acute leukemia this turned out to be the case, a result amply confirmed by Burchenal and others.[45]

By synthesis, Brown prepared a variety of presumed precursors of nucleic acid, as well as many analogues.[46] They were marked with tracer atoms, and administered. Of all the normal components of nucleic acid employed, only adenine was recovered in substantial amounts from the visceral nucleic acid of the rat.

Careful studies indicated, moreover, that the tissue of each organ took up this marked precursor at a different rate. This provided a most important suggestion, supported by the work of other groups, notably that of Chargaff.[47] It was possible that the cellular nucleic acids, vital to reproduction and function, are not all the same, as had been believed. On the contrary, each cell might have its own type, quite different from

Figure 1—Sarcoma T241 cells of untreated culture.*

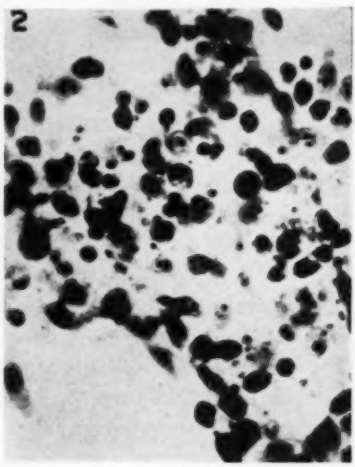

Figure 2—Sarcoma T241 cells of culture treated with 0.4 mM of diaminopurine hydrochloride per liter.*

Figure 3—Embryo mouse-skin cells in untreated culture.*

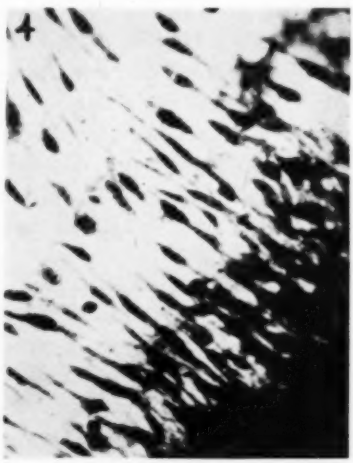

Figure 4—Embry mouse-skin cells in culture treated with 0.4 mM of diaminopurine hydrochloride per liter.*

* Figures 1, 2, 3, and 4—Studies on 2, 6-diaminopurine and related substances in cultures of embryonic and sarcomatous rodent tissues. John J. Biesele, Ruth E. Berger, Anne Yates Wilson, George H. Hitchings and Gertrude B. Elion, *Cancer*, 4:186, 1951.

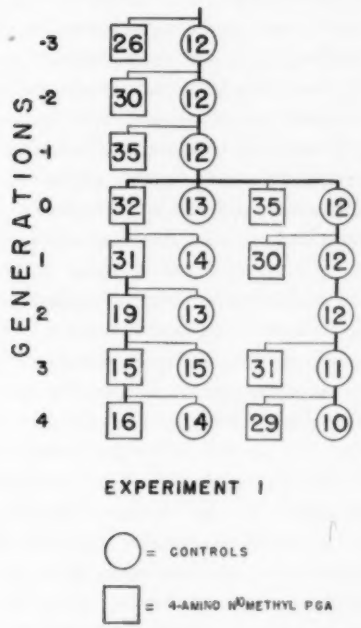

Figure 5—Genealogy of 4-amino-N^{10}-methyl PGA-resistant strains. The figures in the circles represent the average survival time in days of groups of ten untreated mice; those in the squares the average survival time of groups of ten mice treated with 4-amino-N^{10}-methyl-PGA 3 mg/kg intraperitoneally three times weekly.**

** Figure 5—The induction of resistance to 4-amino-N^{10}-methyl peteroylglutamic acid in a strain of transmitted mouse leukemia. J. H. Burchenal, E. Robinson, S. F. Johnston, and M. N. Kushida. *Science, 111*:116, 1950.

that of any other cell. Since all of our bodily components are in dynamic equilibrium, constantly breaking down and repairing, each cell might have a different requirement for the precursors, the repair parts of its nucleic acid. If this were the case, by preparing synthetically an abnormal, unusable precursor which would be taken up like a perfect one, but could not function as such, preferential and specific cell destruction should be possible. And this kind of destruction *is* chemotherapy.

A compound, not known to occur in nature but slightly dissimilar to adenine, 2,6-diaminopurine, was then prepared and marked. After administration to the rat, the marker was recovered in the nucleic acid of the animal. Furthermore, the compound was toxic and so was presumed to be an anti-metabolite of the normal adenine. This proved that the cell will take up an abnormal precursor of nucleic acid. The abnormal substance was then administered by Burchenal[48] to animals bearing transplantable lymphatic leukemia. A substantial prolongation of survival time resulted. When employed in tissue culture by Biesele,[49] a profound difference in the injurious effect exerted on normal tissue of two different species was observed (See Figures 1, 2, 3, and 4). Furthermore, when compared with homologous normal cells of similar type, and growing at the same rate, certain neoplastic cells of mice evinced a very much greater sensitivity to injury. In the rat, however, the situation was exactly reversed; the normal cells were much more sensitive than the neoplastic, a further indication of cellular specificity of nucleic acid anabolism. Further studies revealed that other abnormal precursors are capable of exerting *in vitro* highly specific injurious effects on cells.

It can be concluded that selective injury of neoplastic as compared to normal cells probably is possible because of a difference in the anabolism of the nucleic acids in cells of different types. It is hoped, but not yet proven, that specific patterns of nucleic acid anabolism will characterize cancer as contrasted with normal cells. If so, a high degree of selective chemical toxicity, i.e., chemotherapeutic effects, analogous to those exerted on bacteria, could be expected from the use of suitable anti-metabolites to nucleic acid precursors.

It may well be asked, if selective injury of cancer as compared to normal cells be so easy to demonstrate, and can be obtained by compounds of whose mode of action something is known, why are not chemical cures, as well as growth-restraining agents already at hand for cancer, as they are for bacteria? The explanation is as follows:

1. Bacterial chemotherapy, though revolutionary, is still not a panacea. Some bacteria are relatively invulnerable.

2. We have more trouble in killing all the cancer cells than we have in killing all the bacteria, by concentrations of chemicals which are tolerated. Better selectivity for cancer is required and is being sought ardently.

3. Both bacteria and cancer cells possess the ability to become resistant to chemotherapeutic agents. This point has been so well demonstrated for bacteria, as scarcely to require comment. It is well to recall, however, that the development of resistance by tubercle bacilli prohibits the routine treatment of tuberculosis with streptomycin.

Acquired resistance of cancer cells is not only a handicap to the development of control measures, it also provides an important analogy between the infectious and neoplastic processes. The first quantitative demonstration of this phenomenon was that of Burchenal[50] (See Figure 5).

In extensive observations of the therapeutic value in acute leukemia of compounds with anti-folic activity, Burchenal, among others, observed in patients the development of a refractory state to regimes of treatment previously effective. This suggested that the neoplastic cells had undergone an adaptive variation which enabled them to survive the adverse effects of the anti-metabolite.

Mouse leukemia, strain AK4, was employed in a study of resistance to therapy. By successive passage into anti-folic-treated homozygous recipient mice, of leukemic cells which had grown out after primary suppression by anti-folic compounds, a resistant strain of cells was created. The cells, born of anti-folic sensitive parents, are now permanently anti-folic resistant.

As a general summary, then, the evidence supports the view that the mechanism of infection and that of cancer are similar in principle. Both are singularly complex processes, infection probably more complex than usually supposed and cancer perhaps more simple. Even more, the data indicate that in certain instances the new race of invading cells which compose the disease of cancer may be as susceptible to control *in principle* as were many of the infectious agents *before* the advent of modern chemotherapy.

From the data, no reason is found to indicate that cancer will prove to be any more of a mystery, or any less susceptible to control by the

methods of research, than are other conditions already sharply reduced as factors in the death rate and economic loss of the nation. May I quote from the Metropolitan Life Insurance Company Bulletin[51]:

"Altogether, the recent trends in cancer mortality are encouraging, and there is reason to believe that real gains are being made. It is very likely that further progress will be achieved by advances in medical and surgical treatment and through discoveries in scientific research. Cancer control is a major challenge not only to the medical profession, but to the lay public as well."

And may I add: It has become popular to decry the progress which has been made in the cancer field and to deprecate the possibility of advance in the future. Were history not so full of similar melancholy statements made regarding other disorders at times when irrefutable evidence to the contrary was at hand, the present cries of alarm might give concern. True, the problem is a difficult one, and the techniques complex. Recall, however, that most work on cancer has been on a random basis and so has included a broad study of natural phenomena relating to growth in general. This has restricted studies designed specifically to attain chemical control of the disease. In spite of the fact that substantial funds for cancer work have been available only since 1945, and that only a small part of them has been allotted to therapeutic studies, the progress has been gratifying indeed.

From the data available it appears that we know in what areas to work to attain better control of cancer. With methods now at hand, or foreseeable, a direct approach to cancer seems to be feasible and rewarding. How, then, can we induce the scientist to employ his applicable investigative tools, not as ends in themselves, but also to make an end to a serious, imperative social problem? It is hard to believe that men and women of good will can fail to be inspired by the example of Ewing who gave every moment of 50 years, often in agony and always crippled, that others might live.

REFERENCES

1. Ewing, J. Cancer problems, *Harvey Lect. 3*:34-88, 1907-08.
2. Wuerthle-Caspé, V., Alexander-Jackson, E., Anderson, J. A., Hillier, J., Allen, R. M. and Smith, L. W. Cultural properties and pathogenicity of certain microorganisms obtained from various proliferative and neoplastic diseases *Amer J. med. Sci. 220*:638-48, 1950.
3. Diller, I. C. and Fisher, M. Isolation of fungi from transplanted, chemically induced and spontaneous tumors, *Cancer*

Research, 10:595-603, 1950.

4. Claude, A. and Murphy, J. B. Transmissible tumors of the fowl, *Physiol. Rev. 13*:246-75, 1933.
5. Little, C. C. The existence of sex-chromosomal influence on the incidence of mammary tumors in mice, *Science 78*: 465-66, 1933.
6. Shope, R. E. A filtrable virus causing a tumor-like condition in rabbits, in its relationship to virus myxomatosum, *J. exp. Med. 56*:803-22, 1932.
7. Kunkel, L. O. Virus diseases of plants: 25 years of progress, 1910-1935, *Brooklyn Bot. Gard. Mem. 4*:51-55, 1936.
8. Braun, A. C. A tumor-inducing bacterium isolated from Euonymous galls, *Phytopath. 40*:1058, 1950.
9. Reilly, H. C. The presence of microörganisms in tumors and other tissues in the mouse (abstract), *Cancer Research, 11*:274, 1951.
10. Cannan, C. M. M. and Berger, R. E. Quantative comparison of submicroscopic cytoplasmic particulates observed in normal and malignant cells in tissue culture by the electron microscope (abstract), *Cancer Research, 11*: 242, 1951.
11. Warren, S. and Gates, O. Multiple primary malignant tumors; a survey of the literature and a statistical survey, *Amer. J. Cancer 16*:1358-1414, 1932.
12. Demerec, M. Mutations induced by carcinogens, *Brit. J. Cancer 2*:114, 1948.
13. Avery, O. T., MacLeod, C. M. and Mc Carty, M. M. Studies on the chemotherapy of the substances inducing transformation of pneumococcal types; induction of transformation by desoxyribonucleic acid fraction isolated from pneumococcus type III, *J. exp. Med. 79*:137-58, 1944.
14. Gardner, W. U. Hormonal imbalance in tumorigenesis, *Cancer Research 8*:397-411, 1948.
15. Lacassagne, A. Apparition de cancers de la mamelle chez la souris mâle, soumise à des injections de folliculine, *C. R. Acad. Sci. 195*:630-32. 1932.
16. Gusberg, S. B. Precursors of corpus carcinoma estrogens and adenomatous hyperplasia. *Amer. J. Obst. Gyn. 54*: 905-27, 1947.
17. Gardner, W. U. Hypertrophy of interstitial cells in testes of mice receiving estrogenic hormones, *Anat. Rec. 68*: 339-47, 1937.
18. Pressman, D. The zone of localization of antibodies; specificities in the vascular beds of kidney, liver, and lung, *J. Immunol. 67*:21-33, 1951.
19. Hodenpyl, E. Treatment of carcinoma with the body fluids of a recovered case, *Med Rec. 77*:359, 1910.
20. Beatson, G. T. On the treatment of inoperable cases of cancer of the mamma; suggestions for a new method of treatment, with illustrative cases, *Lancet 2*:104-07; 162-65, 1896.
21. Lett, H. An analysis of 99 cases of inoperable carcinoma of the breast by oophorectomy, *Lancet 1*:227-28, 1905.
22. Huggins, C. Anti-androgenic treatment of prostatic cancer in man, In *Approaches to Tumor Chemotherapy*, Washington A.A.A.S., 1947, pp. 379-83.
23. Adair, F. E. and Herrmann, J. B. The use of testosterone propionate in the treatment of advanced carcinoma of the breast, *Ann. Surg., 123*:1023-35, 1946.
24. Haddow, A., Watkinson, J. M. and Peterson, E. Influence of synthetic estrogens upon advanced malignant disease, *Brit. med. J., 2*:393-98, 1944.
25. Vogel, K. Scurvy—"plague of the sea and spoyle of mariners," *Bull. N. Y. Acad. Med. 9*:459-83, 1933.
26. von Mering, J. and Minkowski, O. Diabetes mellitus nach Pankreasextirpation, *Arch. exp. Path. Pharmak., 26*: 371-87, 1890.
27. Banting, F. G. and Best, C. H. The internal secretion of the pancreas, *J. Lab. clin. Med. 7*:251-66, 1922.
28. Ehrlich, P. and Hata, S. *Die experimentelle Chemotherapie der Spirillosen (Syphilis, Rückfallfieber, Hühnerspirillose, Fränbosie)*. Berlin, Springer, 1910.
29. Colebrook, L. E. and Kenny, M. Treatment of human puerperal infections, and of experimental infections in mice, with prontosil, *Lancet, 1*:1279-1322, 1936.
30. Pasteur, L. and Joubert, J. F. Charbon et septicémie, *C. R. Acad. Sci. 85*:101-45, 1877.

31. Florey, H. W., Chain, E. B., Gardner, A. D., Heatley, W. G., Jennings, M. A., Orr-Ewing, J. and Sanders, A. G. Penicillin as a chemotherapeutic agent, *Lancet, 2*:226-28, 1940.

32. Alfin-Slater, R. B., Larack, A. M. and Petermann, M. L. The preparation and properties of the mitochondria and microscopic particles of normal and leukemic mouse organs, *Cancer Research 9*:215-16, 1949.

33. Hogeboom, G. H. and Schneider, W. G. Intracellular distribution of enzymes; the distribution of diphosphopyridine nucleotidecytochrome c reductase in normal mouse liver and mouse hepatoma, *J. nat. Cancer Inst. 10*:983-87, 1950.

34. Kensler, C. J. and Langemann, H. Choline oxidase activity in rat liver and rat liver tumors (abstract), *Cancer Research, 11*:264, 1951.

35. Kensler, C. J. and Rhoads, C. P. Studies on the mechanism of the production of cancer by azo carcinogens and a preliminary report on experiments on the chemotherapy of cancer. A.A.A.S. *Monograph on Cancer*, 1945.

36. Philips, F. S. and Gilman, A. The relation between chemical constituents and biological action of the nitrogen mustards, in *Approaches to Tumor Chemotherapy*, Washington, A.A.A.S., 1947, pp. 285-92.

37. Jacobson, L. O. et al. Radioactive phosphorus (P^{32}) and alkylamines (nitrogen mustards) in the treatment of neoplastic and allied diseases of hematopoietic system, *Med. Clin. N. Amer. 31*:3-18, 1947.

38. Karnofsky, D. A. Nitrogen mustards in the treatment of neoplastic disease, *Advances in Internal Medicine, 4*:1, 1950.

39. Karnofsky, D. A., Burchenal, J. H., Armistead, G. C., Jr., Southam, C. M., Bernstein, J. L., Craver, L. F. and Rhoads, C. P. Triethylene melamine in the treatment of neoplastic disease, *A.M.A. Arch. int. Med., 87*:477-516, 1951.

40. Karnofsky, D. A., Thiersch, J. B., Patterson, P. A. and Ridgway, L. P. The effects of nitrogen mustard and x-rays on several different mouse tumors growing on the chorioallontoic membrane of the chick embryo (abstract), *Anat Rec. 100*:682, 1948.

41. Bodenstein, D. and Kondritzer, A. A. The effect of nitrogen mustard on nucleic acids during embryonic amphibian development, *J. exp. Zool., 107*: 109-21, 1948.

42. Herriot, R. M. Inactivation of viruses and cells by mustard gas, *J. gen. Physiol., 32*:221-39, 1948.

43. Subbarow, Y. et al. Folic acid, *Ann. N. Y. Acad. Sci. 48*:255-349, 1946.

44. Farber, S. Some observations on the effect of folic acid antagonists on acute leukemia and other forms of incurable cancer, *Blood, 4*:160-67, 1949.

45. Burchenal, J. H., Johnston, S. F., Burchenal, J. R., Kushida, M. N., Robinson, E. and Stock, C. C. Studies of the chemotherapy of leukemia; effect of folic acid derivatives on transplanted mouse leukemia. *Proc. Soc. exp. Biol. Med. 71*:381, 1949.

46. Brown, G. B. Biosynthesis of nucleic acids in the mammal, *Fed. Proc., 9*: 517-23, 1950.

47. Chargaff, E. Chemical specificity of nucleic acids and mechanism of their enzymatic degradation, *Experentia, 6*: 201-09, 1950.

48. Burchenal, J. H., Bendich, A., Brown, G. B., Elion, G. B., Hitchings, G. H., Rhoads, C. P. and Stock, C. C. Preliminary studies on the effect of 2, 6-diaminopurine on transplanted mouse leukemia, *Cancer, 2*:119-20, 1949.

49. Biesele, J. J., Berger, R. E., Wilson, A. Y., Hitchings, G. H. and Elion G. B. Studies on 2, 6-diaminopurine and related substances in cultures of embryonic and sarcomatous rodent tissues, *Cancer 4*:186-97, 1951.

50. Burchenal, J. H., Robinson, E., Johnston, S. F. and Kushida, M. N. The induction of resistance to 4-amino-N^{10}-methyl-pteroylglutamic acid in a strain of transmitted mouse leukemia, *Science 111*:116-17, 1950.

51. Metropolitan Life Insurance Company. *Statistical Bulletin, 31*:7, 1950.

FREUD: MAN AND SCIENTIST*

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IT is my great privilege to speak to you tonight under the auspices of The New York Psychoanalytic Society and Institute and under the chairmanship of the Society's distinguished Vice-President, Dr. René A. Spitz, on the challenging subject of Freud as a man and as a scientist.

Most of us, except perhaps the younger ones among us, realize without too much effort of imagination how tremendous a transformation has taken place within a few decades, not only in our knowledge of human beings, but in our whole outlook and way of thinking about people—their phantasy life, their emotions, their love and hate, the development of the individual from early childhood onward, the influence of early environment and of the interrelationship between children and parents—and in our concepts of human illness and health. This change in outlook extends even to people who have nothing to do with medicine or psychology, who may not even be aware of the existence of psychoanalysis.

This transformation, which has been termed the "psychiatric revolution" of our time, is almost entirely due to Sigmund Freud; so that an eminent biologist, G. Simpson, recently termed it the "Freudian revolution."

When we attempt to frame a definition of the relationship of Freud to psychoanalysis, we are compelled to use several. Indeed, he made momentous discoveries. He invented and established a method of psychological investigation. He devised a therapy: a way of treatment for certain forms of mental illness. He founded a profession. He transformed pathological and normal psychology. He influenced mental hygiene, social work, sociology and anthropology. He had a profound

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impact upon all human sciences. He thus made available to all mankind an understanding of human beings which in the past had been granted to but a few great writers and artists. In short, he created psychoanalysis. And all this he achieved almost single-handedly. I may be permitted here to paraphrase Winston Churchill's famous words and say that rarely in the history of the world have so many owed so much *to one man.*

There has been of late a renewal of interest in biographical studies on Freud. An additional stimulus was given these studies by a collection of early letters, notes and manuscripts which have recently been published in German. As they have not yet appeared in an English translation, they may still be unknown to many of you.

The letters, dating from the period between 1887 and 1902, were written by Freud to Dr. Wilhelm Fliess of Berlin (the father of our colleague, Dr. Robert Fliess), with whom Freud maintained close personal and scientific contact during those fifteen crucial years of his work. The notes and manuscripts had evidently been sent by him to Fliess and remained with the latter, as all the material in the book stems from the estate of Dr. Wilhelm Fliess, except one letter which had been in the hands of Dr. Robert Fliess and was included with his permission. The volume was edited by Marie Bonaparte, Anna Freud and Ernst Kris. The important introduction, dealing with Freud's scientific development, as well as numerous footnotes were written by Dr. Ernst Kris and add enormously to the understanding and appreciation of the historical setting of the material.

When Dr. Sylvan Keiser, the chairman of the committee which organizes these anniversary lectures, asked me some time ago to deliver tonight's address, I suggested another speaker: Mme. Marie Bonaparte, the famous French psychoanalyst, who was staying in this country then under medical care. I made this suggestion because Mme. Bonaparte had worked with Freud for many years, and also because it is thanks to her that these papers have been saved and published. Unfortunately she had to return to France and thus could not accept our invitation to speak here tonight. However, she has graciously given me permission to tell you some little-known facts about the way in which these important documents were preserved for final publication, after they had been in danger of destruction several times.

Early in 1938, Marie Bonaparte acquired the letters from a German bookdealer. This had to be done in great secrecy, as the Nazis would

undoubtedly have destroyed them if their existence had become known. Having safely received the letters in Paris, Mme. Bonaparte took them to Vienna in order to discuss them with Freud. Leaving on a short trip, she placed them in a bank vault there. When she returned, Hitler had occupied Austria—and the Banking House of Rothschild, where the papers had been left for safekeeping, was blocked by the Nazis. She was permitted to withdraw the contents of her safe-deposit box in the presence of the Gestapo—who fortunately did not inquire any further into it, perhaps because of the fact that her maiden and pen name is Marie Bonaparte, but that as a married woman she is a Princess of Greece and of Denmark.

The third peril came from a quarter which will surprise you: from Freud himself, who according to Marie Bonaparte would probably have destroyed the letters had she given them to him. He was reluctant to consent to their publication, but permitted her to read them; adding, however, a little Viennese story which characterizes his attitude in the matter: A man asked a cook how to prepare a wild gamecock, and was told to bury it in the ground for a few weeks. "And what shall I do with it after I dig it up again?" and the answer was: "By then it will stink so much that you will throw it away." That, apparently, was what Freud thought one should do with these old letters. Indeed, he had very little personal vanity—a trait about which I shall have more to say later. In justification of her fear to trust Freud with his own letters, Mme. Bonaparte cites the fact that he burned the manuscript of his book on *The Interpretation of Dreams* immediately after it had appeared in print, remarking: "Why should I have kept it? It was published."

The fourth danger to the letters developed when the Germans occupied Paris. In the spring of 1941, Marie Bonaparte went from France to Greece with her family. Knowing that Greece would be attacked, she entrusted the precious documents to the Danish Embassy in Paris. There the secret was well kept. Having escaped from Greece she proceeded to South Africa where she remained during four years of war, all the while trembling at the thought of what might be happening to Freud's letters. As you know, the German military commander of Paris, General von Choltitz, had orders from Hitler to blow up the center of the city before retreating. You know, too—and humanity must be grateful to him—that he disobeyed these orders and thus saved Paris—and also these manuscripts.

They were imperiled for the fifth and last time when Mme. Bonaparte took them to London immediately after the end of the war. There were still mines adrift in the English Channel. She wrapped them most carefully in waterproof and buoyant material, so that they would float and not be damaged by the water if the ship should sink. (Upon my question, she admitted that she did not take so many precautions for her own survival.) Thus, finally, the papers were brought to Miss Anna Freud in London and could be prepared for publication.

The three editors felt justifiably hesitant to make public these documents, whose author in all likelihood would have opposed their publication had he been alive. And yet they decided to do so, because of their great intrinsic interest. To be sure, the letters do not contain any new scientific revelations; but their value for the psychoanalyst is considerable, since they give insight into the formation of Freud's early theories and hypotheses. They are important for the historian of science; and they have, I believe, truly great value as a human document.

Those now living who knew Freud personally, and even the very few who remain of his early disciples, knew a Freud much older than the one that appears in these letters. They only knew him after a time which he himself called his "heroic period," a period of ten years of complete loneliness. They remember a man who seemed unmoved by criticism and adversity, a man impervious to anxiety and fear.

And indeed, how otherwise could a man living in the Victorian era —and himself living a Victorian kind of life—have found the moral courage to make public his discoveries, discoveries on the role of sexuality in human life, on its existence and development in childhood? How, otherwise, could such a man have dared to speak of the Oedipus complex as a universal feature common to all human beings? It is hard for us, in our time, to imagine what it meant at the end of the nineteenth century for a respectable physician, a devoted husband and father of six children, even to acknowledge such thoughts. Certainly the world in which Freud lived responded with vehemence to his challenge. Rarely has a scientist been heaped with so much scorn, invective and ridicule as was Freud. Even his young daughter was nicknamed by her schoolmates "the daughter of the madman."

Permit me to give you a brief outline of Sigmund Freud's life and scientific career before and during the time of his correspondence with Wilhelm Fliess.

He was born in 1856 in Freiberg, a small Moravian town in the old Austro-Hungarian Empire. When he was four, his family, after a financial crisis, moved to Vienna. There he grew up and received his education, first at the Gymnasium (high school) and then at the University of Vienna. The teaching at the Gymnasium centered mainly around Latin and Greek. All through his high-school years he was the best pupil in his class. This seems in peculiar contrast with his unconventional, indeed revolutionary, intellectual development later. Yet to the end of his life, he retained his love for classical literature and history.

Not until shortly before he enrolled in the University did he decide to study medicine; and his inclination, at first, appears not to have been for practical medicine. For several years he worked at the Physiological Institute, where he did interesting research. Finally the advice of his teacher, Brücke, and the wish to get married moved him to establish himself in practice.

After leaving the Physiological Institute, Freud devoted himself to neurology. Among the various anatomical, clinical, and pharmacological studies he made at that time—around 1885—he published preliminary results on the then unknown anesthetic properties of cocaine. He interrupted this work for a trip to Hamburg to see his fiancée. When he came back to Vienna, he found that the decisive paper on cocaine had meanwhile been published by his colleague and laboratory neighbor, Koller. You know that Koller's name has since then remained associated with this discovery.

At the first operation, by the way, which was ever performed with cocaine local anesthesia, four persons were present: the surgeon was Freud's friend, the ophthalmologist Königstein; Koller and Freud himself were there; and the patient—the first one on whom an operation was performed with cocaine anesthesia—was Freud's old father.

Freud published a considerable number of works on neuropathology. Some of them—like the study on Aphasia and the one on Infantile Cerebral Paralysis, written in 1897—still retain their value today.

In 1886 Freud received a fellowship for a visit to Paris, where he worked under Charcot at the Salpétrière. Later he translated two of Charcot's books into German and defended the great French neurologist's views on hysteria against the skeptical Viennese doctors. In several respects Freud recognized his indebtedness to the French school of neuropsychiatry of the time, and he always kept his high regard for

Charcot's personality and methods. In 1889 he went to Nancy for a short time, in order to observe Bernheim's work. You know that the latter was famous for his important studies on hypnosis; he introduced the concept of suggestion for the explanation of hypnosis and related phenomena. Freud later also translated Bernheim's book into German and acknowledged his influence on the development of psychoanalytic technique.

However, the most important role in Freud's discoveries was played by Josef Breuer. He was thirteen years older than Freud, an internist of great reputation in Vienna. They were probably brought together by their common interest in physiology, and Breuer was very helpful to the young and unknown Freud in establishing his practice. But what proved of more decisive influence on Freud's career was that Breuer told him of a clinical experience he had had in the early eighties with a case of hysteria.

This case, which later became famous as "the case of Anna O.," was that of a very severe hysteria with numerous symptoms—paralyses, sensory disturbances and twilight states. During these twilight states the patient seemed to relive some forgotten scenes of her past life. Because he was interested in these, Breuer would hypnotize her and ask her to remember the past. He then observed the striking phenomenon that whenever she remembered and relived, in hypnosis, certain important events in her life, certain symptoms would disappear. Moreover, these symptoms were directly connected with these events. Let me give you one of these instances. The patient had an unsurmountable aversion to drinking water out of a glass. This symptom disappeared when in the hypnosis she remembered a scene of having surprised her English governess, whom she disliked, giving her little dog water to drink out of her glass.

This case, then, was the first of several reported by Breuer and Freud later on, in 1895, in their first psychoanalytic publication (excepting a preliminary study published two years earlier). Breuer never treated another case by this method. The theoretical chapter in the book is signed by him, although Ernst Kris assumes on the basis of Freud's letters to Fliess that Freud greatly contributed in its formulation. There was, from the beginning, a certain disagreement between the two authors as to the importance of sexuality in the etiology of hysteria. In the case contributed by Breuer, sexuality apparently did not play a role. In all

of Freud's cases it did. Perhaps some time in the future it will be revealed on what unpublished details of "Anna O.'s" case Freud based his belief that even in this patient's history, sexuality had been an etiological factor. Breuer gradually withdrew from active collaboration with Freud, toward whom he retained a mixture of admiration and apprehensive disbelief.

It is interesting that several years after Breuer's treatment of "Anna O.," but before the appearance of Breuer's and Freud's publication, the famous French psychiatrist, Pierre Janet, had published analogous cases treated by the same method. However, Janet shrank away from the crucial conclusion to be drawn from such cases—namely, the existence of dynamically active, unconscious psychic phenomena—whereas Freud, by the bold step of assuming the unconscious, was able to make all his other discoveries.

Freud's correspondence with Wilhelm Fliess extends over a period which saw the first beginnings of his attempts to treat patients by the hypnotic method and which ended after the publication of his first major work, *The Interpretation of Dreams*. In those crucial years, Fliess gradually replaced Breuer as Freud's friend; for some time, as Freud says, he was his only public. Later, after the break between them, Freud was to become completely lonely. For Fliess was not only Freud's close personal friend, but a man with whom he could exchange scientific ideas and discuss his most intimate plans and theories. He was a very successful ear, nose and throat specialist in Berlin, who fascinated Freud by his extensive knowledge and daring biological theories. Later research did not confirm the two main ideas which Fliess propounded: 1) that of a functional connection between the nasal mucosa and the genital organs; and 2) a theory according to which all human beings and even all living organisms are determined in their activities by the interaction of two periods in their lives, the one of twenty-eight and the other of twenty-three days, the so-called "female" and the so-called "male" period. Freud was unable to verify the double periodicity in human life on the basis of his clinical and psychoanalytic material. It is certain that this was one of the causes of their estrangement. However, Freud acknowledged repeatedly that he owed to Fliess the idea of bisexuality as an important factor in human behavior.

In the letters we witness Freud's development of the psychoanalytic technique: the hypnotic procedure he used in the beginning, then the method he called the concentration technique, and finally the elaboration

of the psychoanalytic technique proper, as we know it today. During those years he had to develop a language for the description of the strange and complicated phenomena he was observing, and it is well known that he became a master as a scientific writer. Moreover, we know—and this applies to all sciences—that the observation of facts is not, in itself, sufficient to make a scientific discovery. A conceptual framework is needed to transform a series of isolated observations into a discovery. Freud labored for years to build the necessary theoretical foundations, which he achieved through the gradual abandonment of physiological concepts in favor of purely psychological ones.

During this period he elaborated a number of theoretical concepts and hypotheses, some of which he abandoned again; as, for instance, the concept of defenses, which is the basis of several papers on what he then called "defense neuropsychoses," and which was entirely replaced by the concept of repression in *The Interpretation of Dreams*, published, as you may remember, in 1900. Not until thirty years later, in the mid-twenties, did Freud revert to the study of the various defense mechanisms; that is to say, the methods the ego uses to ward off instinctual drives. This became possible after he undertook theoretical reformulations on the psychic apparatus, which have had far-reaching effects. Indeed, these views have had—and will continue to have—an essential influence on research in normal and pathological psychology, as well as on therapy. At the same time—that is, in the mid-twenties—Freud also modified the theory of anxiety which he had held for thirty years. He introduced the concept of anxiety as a signal function, a concept which has become extremely fruitful in theory as well as in practice. And these fundamental revisions of his theories were made by a man of seventy!

But let us return to Freud's early period and his efforts to discover the etiology and pathogenesis of neurotic symptoms. At the beginning of his work with the hypnotic method, he found that neurotic symptoms were based on traumatic events. Gradually he was able to observe that these traumatic events centered around sexual experiences. At a later stage in his systematic search for the nature and the date of the sexual traumata, he came to believe that neuroses were based upon early sexual seduction of children—either by playmates, or by adults and even parents. However, these assumptions were contradicted by other facts. Freud says in his Autobiography that he was so baffled at that time that he was

about to abandon his entire research. (We shall soon see what experience helped him to clear up this contradiction.)

An interesting fact he mentions in the letters is that while establishing the connections between neurotic symptoms and dreams, he found an essential explanation for the similarity of symptom and dream formation, but then forgot it and found it again almost two years later.

Toward the end of the correspondence with Fliess we find letters which deal with the publication of his book *The Interpretation of Dreams*. This work is perhaps the greatest single contribution to the understanding of human beings that has ever been made in the history of science. And yet, after its appearance—so Freud says in these letters—he was completely dejected for some time. It is difficult to decide whether this was entirely due to the scathing reviews which the book received. However that may be, he knew—he had known while writing it—that this work represented the solution of an enigma which had been puzzling the minds of men for thousands of years: that it answered the problem of the meaning of dreams.

One of the signal discoveries of psychoanalysis was to find in so-called rational thinking the unconscious influence of irrational or emotional elements deriving from the remotest past of an individual. Many biographical studies written by psychoanalysts about great artists and scientists have revealed the impact of these emotional factors. In a recent lecture at the New York Psychoanalytic Society, the distinguished psychoanalyst, Dr. Siegfried Bernfeld, made a very interesting attempt to psychoanalyze some specific aspects of Freud's life. The letters to Fliess, with their intimate biographical data, furnish valuable material for such investigations. But analysts know that however revealing these psychoanalytic biographies may be, they can never explain why an artist transforms his emotions and conflicts into a work of art, why a scientist is able to make discoveries. Therefore these letters will disappoint the reader if he looks to them in the hope of understanding Freud's creative genius. As a matter of fact no disclosures of a personal kind can yield such an explanation.

To be sure, we know that Freud possessed a brilliant mind and imagination, that he was endowed with unusual capacity for work; but these gifts alone do not explain his achievements. And yet, perhaps we can find some particular traits in Freud which, while they do not explain the fact of his discoveries, may have helped consider-

ably to make them. We shall talk about that in a moment.

In some persons, again, the letters may provoke another kind of reaction. For if they give a picture of an enthusiastic, ambitious young scientist, they also reveal a man painfully struggling against fears, doubts, and even neurotic anxiety. Those readers who in childhood or puberty have been, suddenly, deeply disillusioned by the discovery of some human frailty in their hitherto idolized, perfect father, may well experience a similar type of reaction, this time toward Freud. Nevertheless, I believe they would be wrong to be disillusioned. There is nothing in the letters that lessens Freud's stature, nothing anyone could be ashamed of.

The "weakness" of Freud's they reveal, which some might be most affected by, is the presence of anxiety. The anxiety present in Freud at that time had two main aspects. One was the constant, very realistic fear of poverty, of not being able to make a living for his family. He had no personal means, and he had six children to bring up. This explains his rather surprising zeal to obtain the title of professor. You know the prestige attached to this title, especially in Central Europe, and it was particularly difficult for a Jew to attain a professorship in Imperial Austria. Freud hoped that this title would help him to assure his financial independence. Nevertheless—and this moral courage is remarkable—these considerations did not stop him from publishing books and papers—as for instance on sexuality in childhood—which he must have known would in no way help increase the number of his patients. Thus one might compare his attitude to his own fear with that of the Marshal de Crillon, a general of King Henry the Fourth of France, who, as he led his troops into battle, said to himself: "Tremble, miserable carcass—you would tremble much more if you knew where I am leading you!"

The other kind of anxiety Freud's letters reveal is a neurotic symptom—a phobia connected with railways—which he analyzed himself.

His self-analysis, which he appears to have begun in 1897, continued for several years and contributed decisively to the solution of a problem I mentioned a moment ago. You will remember I said that he was deeply puzzled by the contradictions arising from his assumption that neuroses were always brought about by sexual seduction in childhood. Here his analysis brought him essential enlightenment. According to the seduction theory, neuroses seemed to be based on

fortuitous events lying entirely outside the responsibility of the individual. But in analyzing himself as well as his patients he became aware of the great effort which the analyst must apply to overcome the patient's resistance against the treatment, his resistance to acknowledging or remembering warded-off experiences or tendencies. This led him to the discovery that what he had taken for instances of seduction were often nothing but phantasies expressing the children's own sexual wishes. Thus his self-analysis helped him to conceive of neuroses as based upon pathogenic conflicts between instinctual drives and repressive forces; that is to say, as something connected both with the influence of the environment and with the maturation of the child. In other words, he came to see the neurosis as a result of the development of the individual in a given environment.

By the same token, he took a step from the accidental to the general —to what is universal in human beings. He thus widened his concepts from psychopathology to general psychology—from the understanding of neuroses to the understanding of man. This is made very clear by Dr. Kris in his introduction to the letters.

What I want to stress here is that Freud, by publishing these results as being common to all men, thus also revealed the existence of these tendencies in himself, as he did for instance in his book on *The Interpretation of Dreams*. This was indeed a proof of great moral courage and objectivity. It meant, moreover, that by analyzing his own anxieties he could make them yield something of value to humanity. Thus Freud's self-analysis, the first ever attempted, had far-reaching consequences. It also seems to have had satisfactory results. This in itself is quite remarkable, because usually self-analyses have not been found very satisfactory. It has, later on, become an established rule for every psychoanalyst to be analyzed by another. The Socratic principle, the "know thyself," is a prerequisite for the analyst, but not for the analyst alone. Indeed, whoever deals with human beings, whose profession or interest involves the understanding and knowledge of human behavior, can attain this knowledge only by knowing himself.

Freud's objectivity and lack of vanity must have played a role also in another essential discovery he made: that of transference. There are good reasons to believe he recognized very early that the patient's emotional reactions to the analyst have to be understood as part of the neurosis and of the therapeutic procedure. Due to the rapport

which develops between the patient and his doctor, the stirring-up of unconscious conflicts in the patient frequently elicits emotional reactions to the analyst. The point is that these responses, which may range from hostile to amorous reactions, are repetitions of the patient's repressed past. The task of the analyst is not to take them at their face value, but to understand and analyze them. For us now, who know the importance of transference in psychoanalysis and who have ourselves been analyzed, it is relatively easy to do this. But only Freud's modesty, his detachment from his own person, could enable him to conceive the idea of transference and to discover the method of dealing with it.

The occurrence of transference reactions makes it imperative for the analyst himself to undergo a psychoanalysis, so as to avert a very unfortunate complication during analytic treatments: Namely, that he might himself, in turn, react emotionally to the patient and thus produce what we call a "countertransference." One can imagine how painful and difficult it must have been for Freud—who could not be analyzed by anyone else, since no other analysts existed at that time—to reach an objective understanding of himself by means of self-analysis. The difficulty of such a procedure was wittily described the other day by Dr. Macfarlane of San Francisco. He said: "What is wrong with self-analysis?—The countertransference!" (In other words, the disturbing emotional attitude of the person who analyzes himself.) Apparently this was far less of an obstacle to Freud, because of his unusual objectivity.

To this trait, which we believe was one of the most important personal characteristics that facilitated his discoveries, we must add his capacity for work and the intensity of his scientific interest The late Karl Abraham once made a trip to Italy with Freud. He said that while he himself, like other people, was exhausted after visiting a museum for a few hours, Freud was indefatigable and would continue until evening with the same enthusiasm.

Marie Bonaparte in a conversation with Freud once told him that he was a great man. He replied: "I am not a great man; I made a great discovery." This is a most significant remark. We must bear in mind, first of all, that he really meant what he said. Certainly in his case it was not the kind of paradoxical reaction we meet with in people who devalue their achievements. This devaluation is sometimes due to

unconscious guilt feelings, or at times to an odd pride in some hobby. You may have heard the story of the famous woman mathematician, at the turn of the century, who was a professor of mathematics at one of the great Scandinavian universities. It was said that she did not care a whit about her outstanding scientific achievements but desired exclusively to be admired for her ability as a horsewoman.

No, Freud was very well aware of the greatness of his discovery—but he did not regard himself as a great man. Yet, of certain great artists and writers and thinkers he did believe that they were great men. Was he evaluating himself when he said somewhere that an analyst is a man who modestly, patiently, laboriously, wrests from nature her secrets? However that may be—I am convinced that few of us would agree with the first part of his statement to Marie Bonaparte. Indeed, most of us think that he was a great man; and I would even consider his remark another proof of his greatness, and this not simply because he was modest. Modesty is a great virtue, but it does not by itself make a man great.

Why, then, do we call Freud a great man? I believe that we use these words when we think of someone who is great not only by virtue of his achievements but also by something inherent in his personality. And this I believe was true of Freud.

You will remember that in his letters he gave repeated expression to his financial worries and fears for the present and future. But later in life this same man displayed extraordinary generosity. He not only supported his immediate family; he was most generous in helping many relatives; he gave direct financial aid to some of his pupils; and all through his life he reserved one hour each day for a young analyst, whose nominal fee would be turned over to the Vienna Psychoanalytic Institute. There are two among the members of the teaching staff of the New York Psychoanalytic Institute who were trained by him in this way. Furthermore, when his publications began to yield a profit, a large part of it, if not all of it, went to support the Psychoanalytic Publishing Company. Without this financial assistance the other analysts could not have published their papers and books, for at that time such works were even less of a business proposition than they are nowadays. Never did he fail any younger analyst who approached him for encouragement, help or advice.

Moreover, all psychoanalysts, psychiatrists and psychologists are

indebted to Freud for everything he discovered or wrote. His writings remain the essential part of what any student of psychoanalysis must learn, and this is equally true for those who teach psychoanalysis. It is also true for those who attempt to make new discoveries in this field. And sometimes, studying his writings, they become aware that many of their "new" discoveries had already been made by Freud. Small wonder then if some of those who try to go him one better find this so disappointing that they stop reading him. But quite aside from cases of blatant ingratitude, it is not surprising that those who are indebted to him should become liable to the usual consequence of gratitude: namely, an oscillation between submission and revolt. And we know that these contradictory reactions may easily lead to some form of idolization.

It is at this point that the particular, characteristic trait of Freud, which we spoke of a moment ago, takes on a special importance. His objectivity, his lack of vanity, his effacement of his own person transform the idolization into something more fruitful; they enable other human beings to identify with him more easily. By identifying, I do not mean to imagine a resemblance to him; but to make of his person an ego-ideal, as we call it: an image one is driven to emulate. By the same token, Freud's detachment from his own person acts as an incentive to disregard one's own person in the search for knowledge and truth. Thus the impact of his discoveries upon man's knowledge of man is based on something in Freud which carries it beyond his person —and herein lies his greatness.

In conclusion, I would like to share with you a memory which has left its imprint on me: the memory of the first lecture I heard Freud give in public. It was also his last one. It was in 1922, at the convention of the International Psychoanalytic Association in Berlin. You know that the following year he was afflicted by a cancer of the jaw, of which he died sixteen years later.

In that paper in 1922—which was the most impressive scientific lecture I ever heard in my life, delivered with the greatest simplicity and utmost clarity—Freud, at the age of sixty-six, first introduced the new conceptual frame of reference I mentioned before. Furthermore, he communicated a fundamentally new discovery: that of the unconscious moral forces; the superego, as he termed it. And as he was speaking of this new discovery, he said:

"The reproach has been made against us that we paint men worse than they really are; we shall now be reproached for showing them better than they are."

And then he added:

"The truth is that there is more in human beings than we know."

Thanks to him, we know infinitely more than we did before—and yet his example as a man and as a scientist encourages us to continue the search for the understanding of all that we still do not know.

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Abelmann, H. W. Cancer as I see it. New York, Philosophical Library, [1951], 100 p.

Acidi nucleici, proteine a differenziamento normale e patologico [di] C. Barigozzi [et al.]. Torino, Rosenberg, 1949, 126 p.

Administrative medicine; Haven Emerson, editor. New York, Nelson, [1951], 1007 p.

Alkaloids (The); chemistry and physiology, edited by R. H. F. Manske [and] H. L. Holmes. New York, Academic Press, 1950, v. 1.

Alsop, G. F. History of the Woman's Medical College, Philadelphia, Pennsylvania, 1850-1950. Phila., Lippincott, [1950], 256 p.

Altschuller, G. Tsar i doktor. [Czar and physician, Petr Vasilevich Postnikov.] Nyu Iork, Rausen, 1951, 380 p.

Alvarez, W. C. The neuroses; diagnosis and management of functional disorders and minor psychoses. Phila., Saunders, 1951, 667 p.

American Academy of Pediatrics. Hawaii Territorial Study Committee. Child health services in the Territory of Hawaii, 1946. [Honolulu?, 1950?], 88 numb. l.

American Medical Association. Council on Pharmacy and Chemistry. Epitome of the Pharmacopeia of the United States and the National formulary. 9. ed. Phila., Lippincott, [1951], 255 p.

American Public Health Association. Diagnostic procedures for virus and rickettsial diseases. New York, Amer. Pub. Health Assoc., [1948], 347 p.

Anxiety, edited by P. H. Hoch and J. Zubin. [Proceedings of the thirty-ninth annual meeting of the American Psychopathological Association, New York, 1949.] New York, Grune, 1950, 254 p.

Appel, J. Die fokale Reaktion als Kausaltherapie der dentogenen Herdinfektion. Haag/Amper, Linck, 1948, 116 p.

Apperly, F. L. Patterns of disease on a basis of physiologic pathology. Phila., Lippincott, [1951], 456 p.

Arends, G. Volkstümliche Namen der Arzneimittel, Drogen, Heilkräuter und Chemikalien. 13. Aufl. Berlin, Springer, 1948, 262 p.

Baron, M. A. Reaktivnye struktury vnutrennikh obolochek (seroznykh, mozgovykh, sinovialnykh, endokarda i amniona). [Reaktive structures of internal membranes (serous, cerebral, synovial membranes, endocardium and amnion).] [Leningrad], MEDGIZ, 1949, 463 p.

Beckmann, K. Arzneitherapie innerer Krankheiten; klinische Pharmakologie. Stuttgart, Enke, 1949, 846 p.

Berg, H. Wetter und Krankheiten. Bonn, Bouvier, 1948, 140 p.

Beyer, K. H. Pharmacological basis of penicillin therapy. Springfield, Ill., Thomas, [1950], 214 p.

Bierhaus, H. Chirurgie und Kreislauf. Stuttgart, Wissenschaftl. Verlagsges., 1949, 301 p.

Bini, L. & Bazzi, T. Le psiconevrosi. Roma, Abruzzini, 1949, 287 p.

Binswanger, H. Kurzes Lehrbuch der Psychiatrie; die Psychosen und Möglichkeiten ihrer Interpretation. Zürich, Hirzel, 1949, 276 p.

Bleuler, P. E. Lehrbuch der Psychiatrie. 8. Aufl. Berlin, Springer, 1949, 506 p.

Braun, H. Pharmakologie des Deutschen Arzneibuchs, 6. Ausgabe und des Ergänzungsbuches 6 zum Deutschen Arzneibuch. 3. Aufl. Stuttgart, Wissenschaftl. Verlagsges., 1949, 394 p.

von Braunmühl, A. Der meine Jugend erfreut; Tagebuchblätter eines Inntalers. [3. Aufl.] Würzburg, Echter-Verlag, [1950], 133 p.

Bray, W. E. Clinical laboratory methods. 4. ed. St. Louis, Mosby, 1951, 614 p.

British Medical Association. General practice and the training of the general practitioner. London, Brit. Med. Assoc., 1950, 88 p.

Brun, R. General theory of neuroses. New York, International Universities Press, [1951], 469 p.

Budelmann, G. Herzinsuffizienz, Kreislaufinsuffizienz, Coronarinsuffizienz. Hamburg, Nölke, 1949, 229 p.

Bünning, E. Theoretische Grundfragen der Physiologie. 2. Aufl. Stuttgart, Piscator, 1949, 90 p.

Butler, J. A. V. Man is a microcosm. New York, Macmillan, 1951, 162 p.

Caelius Aurelianus. On acute diseases and On chronic diseases. Edited and translated by I. E. Drabkin. [Chicago], Univ. of Chicago Press, [1950], 1019 p.

Caffey, J. P. Pediatric X-ray diagnosis. 2. ed. Chic., Year Book Publishers, [1950], 862 p.

Chemical Rubber Company, Cleveland. Handbook of chemistry and physics. 31. ed. Cleveland, Chemical Rubber Pub. Co., [1949], 2737 p.

Chemistry (The) and technology of food and food products. Prepared under the editorship of M. B. Jacobs. 2.ed. New York, Interscience Publishers, 1951, 1 v.

Ciba Laboratories, Horsham, Sussex. Medical Department. The sex hormones. 4.ed. Horsham, Sussex, Ciba Laboratories, [1950], 186 p.

Cipes, L. R. Prescription writing and materia medica for dentists. 3.ed. Brooklyn, Dental Items of Interest Pub. Co., 1950, 530 p.

Clark, J. M. The Dance of death in the Middle Ages and the Renaissance. Glasgow, Jackson, 1950, 131 p.

Committee on the Function of Nursing. A program for the nursing profession. New York, Macmillan, 1949, 108 p.

Cook, R. C. Human fertility; the modern dilemma. New York, Sloane, [1951], 380 p.

Current trends in the relation of psychology to medicine [by] W. Dennis [and others]. [Pittsburgh], Univ. of Pittsburgh Press, 1950, 189 p.

Davison, W. C. The complete pediatrician. 6.ed. Durham, N. C., Duke Univ. Press, 1949, 256 sections, 7 l.

Dennig, H. & Hangleiter, H. Sulfonamide, Penicillin, Streptomycin in der innerer Medizin. 2. Aufl. Berlin, Haug, [1949], 168 p.

DeSanctis, A. G. G. & Varga, C. Handbook of pediatric medical emergencies. St. Louis, Mosby, 1951, 284 p.

von Drigalski, W. Im Wirkungsfelde Robert Kochs. [Autobiographie.] Hamburg, Dulk, 1948, 523 p.

Eckles, C. H.; Combs, W. B. & Macy, H. Milk and milk products. 4.ed. New York, McGraw-Hill, 1951, 454 p.

Eichler, O. Prinzipien des Lebendigen. Stuttgart, Thieme, 1949, 99 p.

Eickhoff, W. Schilddrüse und Basedow. Stuttgart, Thieme, 1949, 126 p.

Elgood, C. A medical history of Persia and the Eastern Caliphate. Cambridge [Eng.], Univ. Press, 1951, 616 p.

Emmrich, K. Ex ovo; Essays über die Medizin, von Peter Bamm [pseud.] Hamburg, Mölich, [1948], 373 p.

Enzymes and enzyme systems, their state in nature; ed. by J. T. Edsall [and others]. Cambridge, Harvard Univ. Press, 1951, 146 p.

Ernsting, W. Ischias en hernia nuclei pulposi. Haarlem, Bohn, 1948, 114 p.

Euler, H. Lebenserinnerungen eines Lehrers der Zahnheilkunde. München, Hanser, 1949, 200 p.

Feinberg, S. M. Allergy, facts and fancies. New York, Harper, [1951], 173 p.

Fischer, W. & Gruber, G. B. Fünfzig Jahre Pathologie in Deutschland; ein Gedenkbuch zum 50jährigen Bestehen der Deutschen pathologischen Gesellschaft (1897-1947). Stuttgart, Thieme, 1949, 334 p.

Fischer-Lindner, E. Im Dienst verzehrt; aus dem Leben eines Urwalddoktors [Wilhelm Fischer]. Giessen, Schmitz, 1948, 278 p.

Flu, P. C. Voordrachten over aetiologie, epidemiologie en specieele prophylaxis van de infectie-en parasitaire ziekten van den mensch. 2. druk. Haarlem, Bohn, 1948, 911 p.

Fodor, N. The search for the beloved; a

clinical investigation of the trauma of birth and pre-natal conditioning. New York, Hermitage Press, 1949, 400 p.

Ford, C. S. & Beach, F. A. Patterns of sexual behavior. New York, Harper, [1951], 307 p.

Fracastorius, H. Il contagio, le malattie contagiose e la loro cura. Trad. a cura del prof. V. Busacchi. Firenze, Olschki, 1950, 134 p.

Franck, R. Moderne Therapie in innerer Medizin und Allgemeinpraxis. 13. Aufl. Berlin, Springer, 1949, 608 p.

Fromm, E. Psychoanalysis and religion. New Haven, Yale Univ. Press, 1950, 119 p.

Fulton, J. F. Vesalius four centuries later. II. Medicine in the eighteenth century. Lawrence, Univ. of Kansas Press, 1950, 52 p.

Gäumann, E. Die Pilze. Basel, Birkhäuser, 1949, 382 p.

Galustyan, S. D. Stroenie zobnoy jelezy v svete eksperimentalnogo analyza, pod redaktsiey N. G. Khlopina. [The structure of the thymus gland in the light of experimental analysis, edited by N. G. Khlopin.] Moskva, Izd. Akad. Medits. Nauk SSSR, 1949, 183 p.

García y García Miñón, J. Geografía y topografía médica del real sitio de Aranjuez. Madrid, Cosano, [1948], 116 p.

General Aniline and Film Corporation. Development Department. P V P. polyvinyl-pyrrolidone; preparation, properties and applications in the blood field and in other branches of medicine. New York, General Aniline and Film Corporation, 1951, 174 p.

Gibson, J. J. The perception of the visual world. Boston, Houghton Mifflin, [1950], 235 p.

Gibson, J. M. Physician to the world; the life of General William C. Gorgas. Durham, N. C., Duke Univ. Press, 1950, 315 p.

Gillman, J. & Gillman, T. Perspectives in human malnutrition. New York, Grune, 1951, 384 p.

Giordano, M. Patologia e parassitologia ed igiene dei paesi caldi. 3.ed. [Rocca San Casciano], Cappelli, [1950], 2 v.

Gloggengiesser, W. Sektionskurs für Ärzte und Studierende. Stuttgart, Wissenschaftl. Verlagsges., 1949, 147 p.

Grace, W. J.; Wolf, S. G. & Wolff, H. G. The human colon; an experimental study based on direct observation of four fistulous subjects. [New York], Hoeber, [1951], 239 p.

Greve, H. C. Klinische Arzneibehandlung für Zahnärzte. Stuttgart, Enke, 1949, 148 p.

Grunke, W. Die Anwendung der Sulfonamide in der inneren Medizin und ihren Grenzgebieten. Stuttgart, Wissenschaftl. Verlagsges., 1949, 170 p.

Haecker, T. Kierkegaard the cripple. New York, Philosophical Library, [1950], 53 p.

Haurowitz, F. Progress in biochemistry; a report on biochemical problems and on biochemical research since 1939. Basel, Karger, 1950, 405 p.

Hess, W. R. Die funktionelle Organisation des vegetativen Nervensystems. Basel, Schwabe, 1948, 226 p.

Hilgenfeldt, O. Operativer Daumenersatz und Beseitigung von Greifstörungen bei Fingerverlusten. Stuttgart, Enke, 1950, 144 p.

Holstein, E. Grundriss der Arbeitsmedizin, Leipzig, Barth, 1949. 324p.

Horndasch, M. Der Chirurg Napoleons; das Leben des Jean-Dominique Larrey. [2. Aufl.] Bonn, Glöckner, [1949], 269 p.

Human physiology [by] Bernardo A. Houssay [and others]. New York, McGraw-Hill, 1951, 1118 p.

Jackson, P. E. The law of cadavers and of burial and burial places. 2.ed. New York, Prentice-Hall, 1950, 734 p.

Jaretzky, R. Lehrbuch der Pharmakognosie. [2. Aufl.] Braunschweig, Vieweg, 1949, 427 p.

Jeans, (Sir) James. The growth of physical science. Cambridge [Eng.], Univ. Press, 1951, 364 p.

Jüngling, O. Allgemeine Strahlentherapie. 2. Aufl. von R. Glauner und H. Langendorff. Stuttgart, Enke, 1949, 354 p.

Jürgens, G. J. Arzt und Wissenschaft; Erkenntnisse eines Lebens. Hannover, Schmorl, [1949], 217 p.

Kade, H. Die Bedeutung der chronischen Gastritis als präcarcinomatöse Erkrankung. Hamburg, Nölke, 1949, 120 p.

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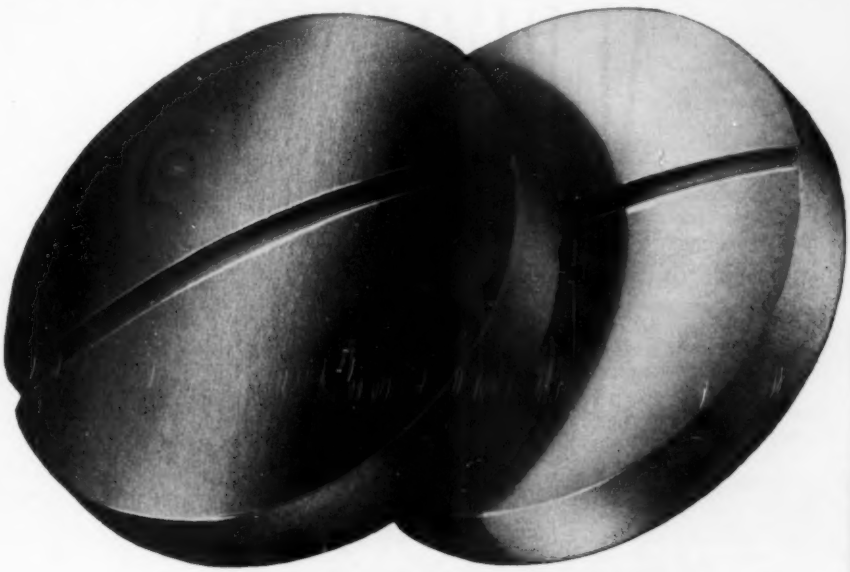

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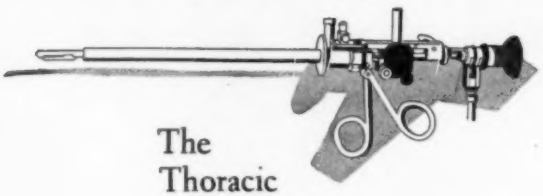

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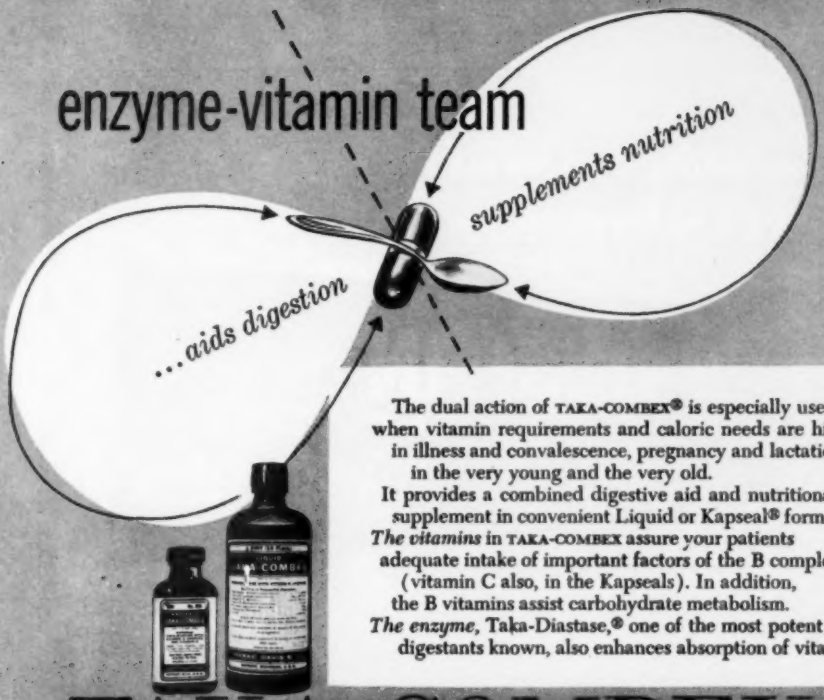

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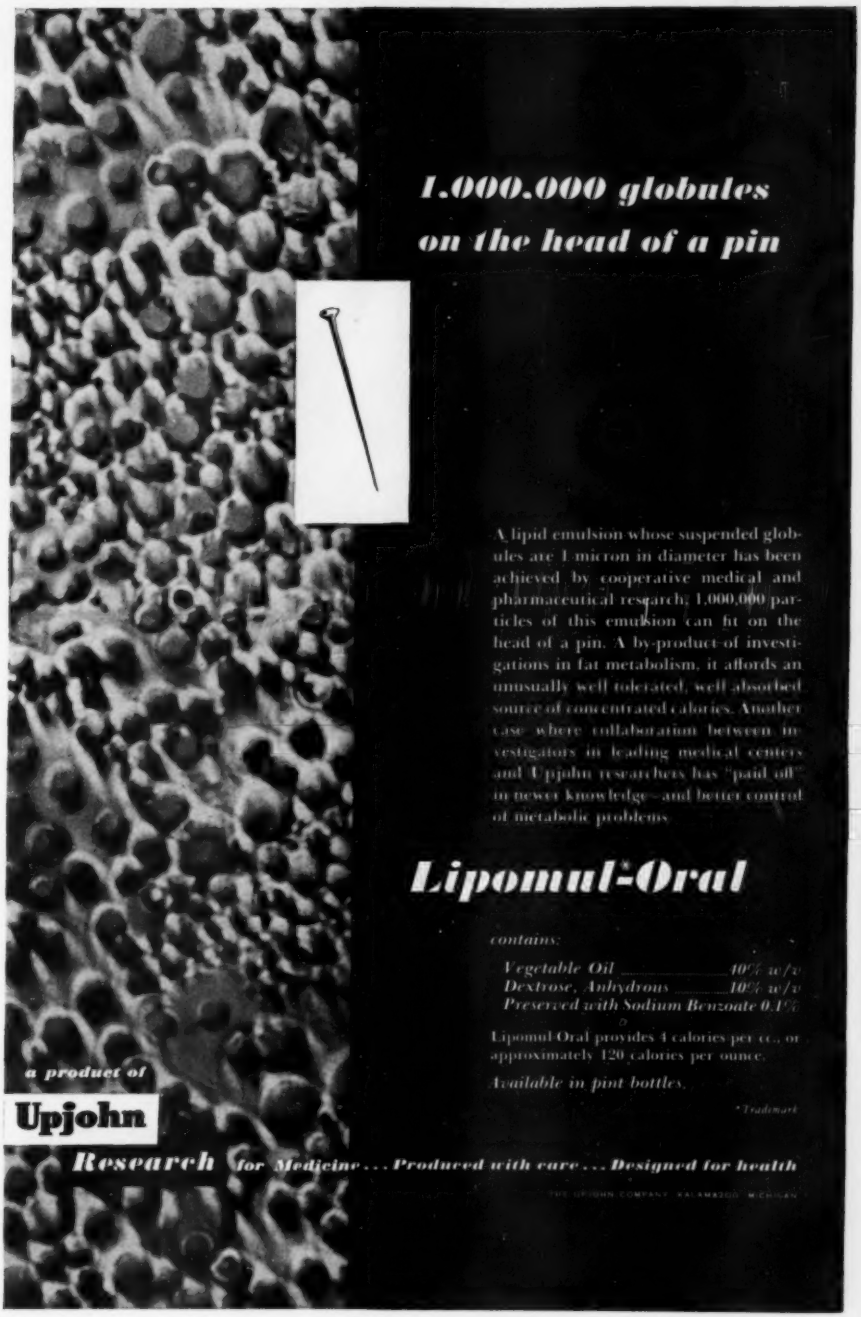

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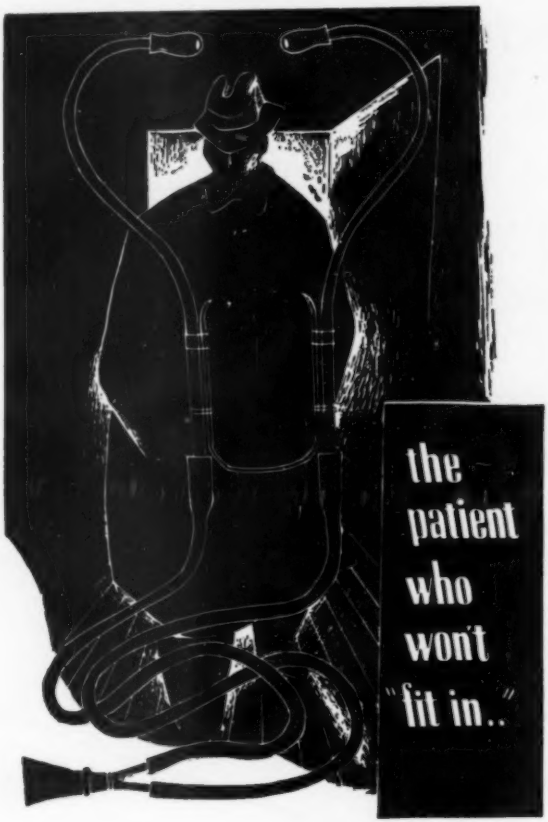

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*Reference: MacBryde, C. M., et. al., *A New Synthetic Estrogen*, J.A.M.A., 125: 304-306 (1944).

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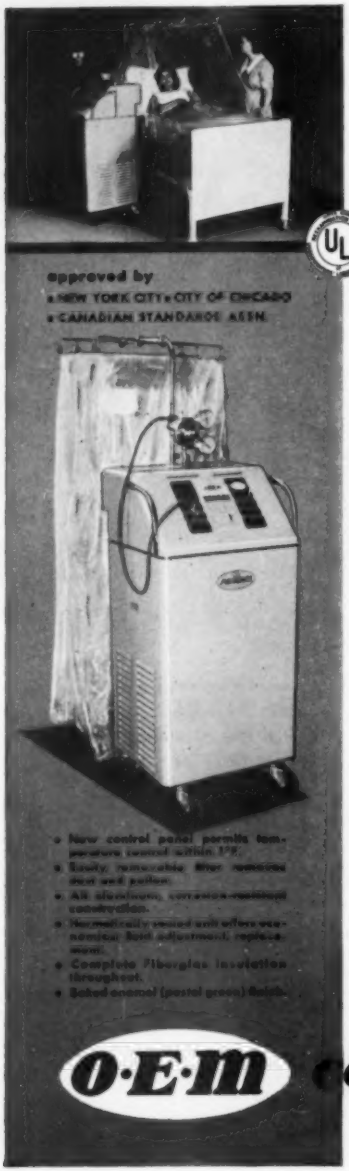

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DOSAGE THERAPEUTIC	15 to 30 micrograms daily for a week or more; when neurologic involvement is present, 50 micrograms or more daily.	1 or 2 capsules daily	2 teaspoonfuls t.i.d.	2 capsules t.i.d.
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SUPPLY	1 cc. ampuls, 15 & 30 micrograms of vitamin B_{12} per ampul. 5 & 10 cc. vials, 30 micrograms per cc. 10 cc. vials 50 micrograms per cc.	Bottles of 100	Pint and gallon bottles	Bottles of 100

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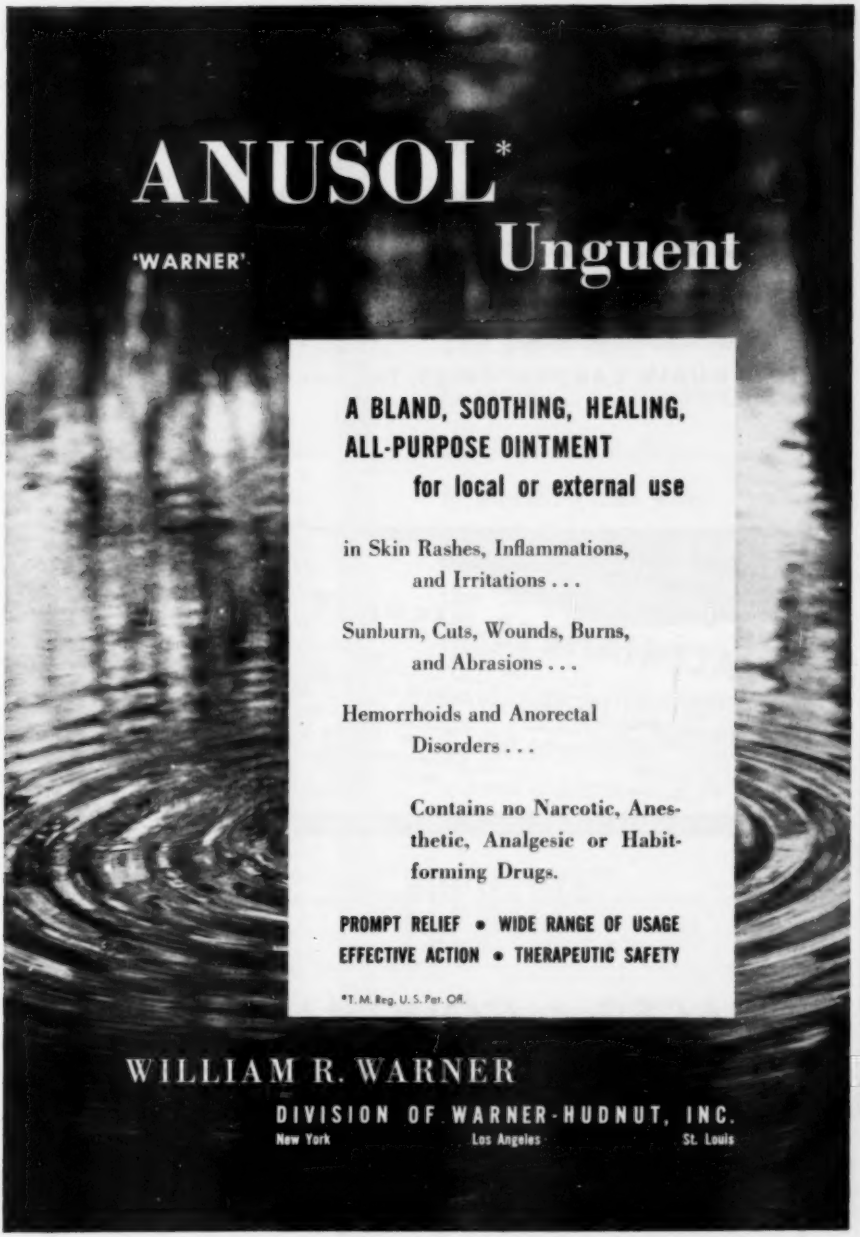
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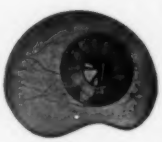

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*Fry, C. O.: J. Am. M.Women's A. 4:51 (Feb.) 1949

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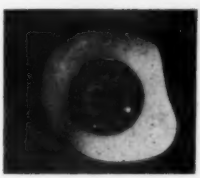

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*Clein, N. W.: Cow's Milk Allergy in Infants, *Annals of Allergy*, March-April, 1951.

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1. Fouley, G. B., Freeman, S., Ivy, A. C., Atkinson, A. J., and Wigodsky, H. S.: Arch. Int. Med. 67:653, 1941.
2. Upham, R., and Chaikin, N. W.: Rev. Gastroenterol. 10:287, 1943.
3. Collins, E. N.: J.A.M.A. 127:890, 1945.

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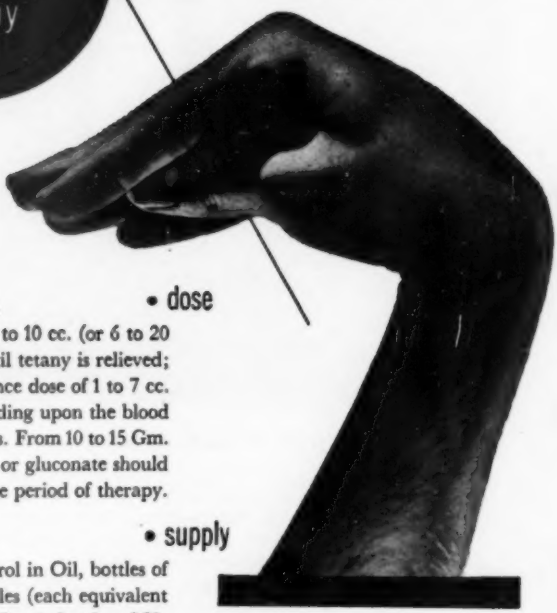

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Orally 3 to 10 cc. (or 6 to 20 capsules) daily until tetany is relieved; weekly maintenance dose of 1 to 7 cc. or 2 to 14 capsules depending upon the blood and urine calcium levels. From 10 to 15 Gm. calcium lactate or gluconate should be given daily through the period of therapy.

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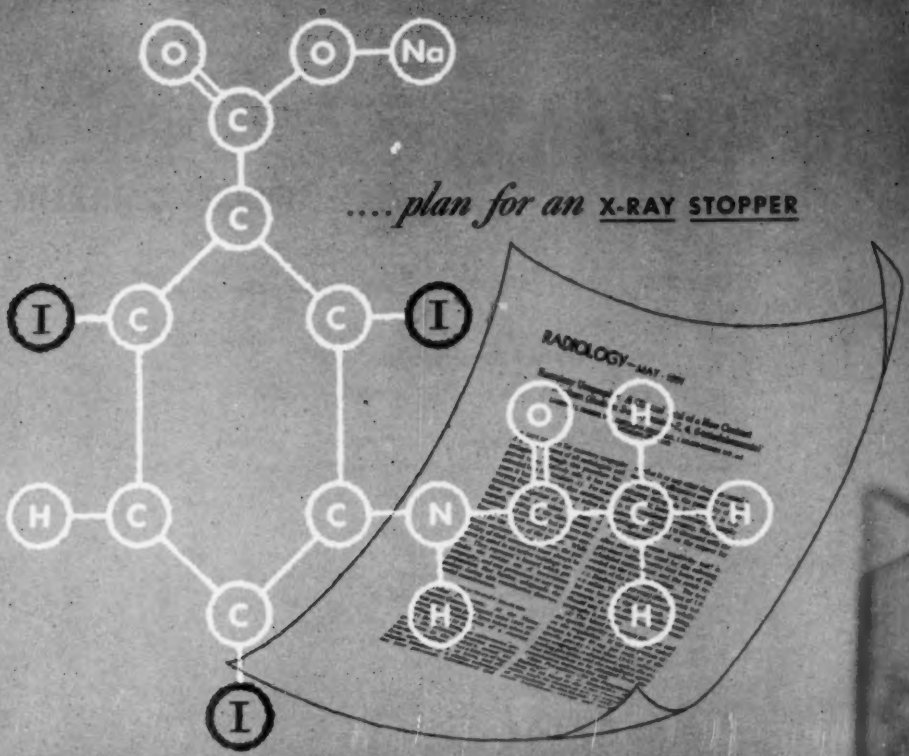

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REFERENCES

Morrison et al.: Am. J. Med. Sc. 216:32, July, 1948; Am. J. Med. 6;388, March, 1949; Am. Heart J. 39:31, Jan., 1950; Geriatrics 5:188, July-Aug., 1950.

Gofman et al.: Science 111:2877, Feb., 1950; Circulation 2:161, Aug., 1950.

Literature and Samples on request

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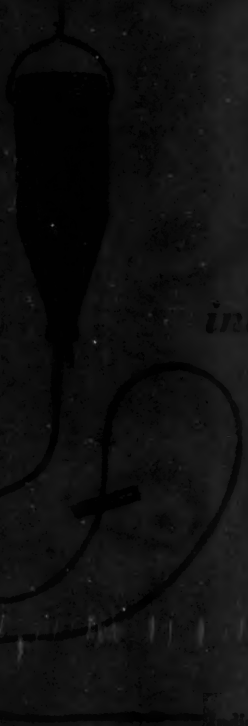

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